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Assessment of Safety of VRUs Based on Self-Reporting of Accidents and Near-Accidents

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Assessment of Safety of VRUs Based on Self-Reporting of Accidents and Near-Accidents

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1.Executive Summary

This report describes a study on self-reporting of accidents and near-accidents that was carried out to gain more knowledge about the safety of vulnerable road users, i.e. pedestrians, cyclists and moped riders.

In the study, the participants registered their accidents and near-accidents in monthly questionnaires for a period of nine months (01.09.2016 - 31.05.2017). The study was conducted in Belgium, Denmark, Spain and Sweden. In total, 2343 participants contributed to the study, mainly from Belgium and Denmark. Therefore, the results in this report are based on the Belgian and Danish data.

The results of the study show that more than one third of the registered accidents are single accidents of cyclists and pedestrians. In most cases, the registered accidents are less severe than what is registered by the police or at the hospital. The results indicate that as few as 2-7% of the participants, who were involved in an accident, have been in contact with the police. Furthermore, only 9% have registered that they had received treatment at the hospital or emergency room. This study thus indicates that self-reporting is a useful tool for gaining knowledge about a larger share of accidents. By including near-accidents as well, the amount of data can be further increased.

2.Introduction

2.1.Background

Pedestrians, cyclists and moped riders are exposed in traffic, because they only have limited protection if involved in an accident. Unfortunately, there is a high degree of under-reporting in the police registered accidents, in particular for cycling accidents (Janstrup *et al.*, 2016). Furthermore, pedestrian fall accidents are not part of the statistics unless a motorised counterpart is involved in the accident. Due to under-reporting it can be difficult to conduct traffic safety analyses and find common characteristics in order to construct hypotheses about why these accidents occur.

Other sources than police reported accidents can be used, for instance information from hospitals registers (Amoros *et al.*, 2006; Cooper & Henson, 1996; Fredlund & Frank, 2016). However, this approach will still result in a lack of information on the less severe accidents, in case the road user has received treatment only from the general practitioner or not sought medical attention at all after the accident.

Self-reporting of accidents can be used as a supplementary source to the official accident statistics to gain knowledge about these less severe accidents that are generally not registered (Lahrmann *et al.*, in press; Meltofte *et al.*, 2015). In addition, self-reporting can also be used to collect information about those situations where the accident is prevented in the last minute; i.e. the near-accidents.

2.2.Aim

To gain more knowledge about and insights into why and how traffic accidents of pedestrians, cyclists and moped riders occur, a self-reporting study was conducted in four countries; Belgium, Denmark, Spain and Sweden.

The participants registered their accidents and near-accidents and provided detailed information regarding those events for a period of nine months (September 2016 – May 2017) via monthly online questionnaires or via a smartphone app in which they could access the questionnaire whenever they wanted.

Apart from the self-reporting of accidents and near-accidents, the study looked into the development of an app for automatic detection of accidents by monitoring road users' movements via the smartphone's motion sensors. The original idea was to combine an accident detection app with an app for self-reporting of accidents, so that as much information could be collected automatically (e.g. time and location) as possible. The participant should then be notified that an accident had been detected and be asked to provide additional information about the accident. To make the development and testing of the apps easier, the two apps (self-reporting app and accident detection app) had been created separately and without connection. This report documents the self-reporting study. The work on developing an app for automatic accident detection is described in InDeV deliverable D4.5 (Madsen *et al.*, 2017).

3.Method

3.1.Study design

The study was carried out in four countries (Belgium, Denmark, Spain and Sweden) as a self-reporting study in which road traffic accidents and near-accidents were to be registered by the participants. Particularly, their accidents and near-accidents as vulnerable road users (i.e. pedestrian, cyclist or moped rider) were of interest for the study, although they could also register incidents in which they have used other means of transport.

Throughout the study, participants were asked to provide detailed information either via a web based questionnaire or via an Android smartphone app; *SafeVRU*, that was developed within the project. The app is further described in InDeV deliverable D6.2 (Madsen *et al.*, 2018).

If using the web-based questionnaire, participants received an email once every month with a link to the questionnaire in which they were asked to indicate whether they had been involved in any accidents or near-accidents during the past month. A reminder was sent after one week to those who did not complete the questionnaire.

The *SafeVRU* app made it possible for the participants to register their accidents and near-accidents whenever they wanted. A notification to remind the participants to register incidents was shown at the beginning of each month. However, the notification was shown only if notifications were enabled on the smartphone.

3.2.Recruitment

Due to limited budgets and unavailability of sources with random e-mail addresses, it was not possible to recruit participants based on a stratified or random sample of people. Instead, this study is based on the recruitment of volunteers who was contacted through different sources. Although the sample is not likely to be representative for the populations in each country, it was preferred to get a larger but uncontrolled sample rather than a small but controlled sample.

The recruitment strategy differed in the four countries depending on the available options to recruit participants for the study. Examples of recruiting letters and material are included in Appendix 1.

In Belgium, participants were recruited via social media (Facebook, LinkedIn, Twitter), via press releases in Belgian newspapers and on local TV, and via direct contact e-mails to all large Flemish universities and graduate schools, municipalities and provinces. Furthermore, interest organizations (e.g. the cyclist and pedestrians associations and the Flemish Foundation for Traffic Knowledge) and companies (small, medium and large) were contacted to ask them to distribute information about the study to their employees. Finally, participants from previous studies and personal contacts were contacted, as well as all employees and students at Hasselt University.

In Denmark, recruitment was carried out via social media (Facebook, LinkedIn), via contact to municipalities to ask them to share an invitation to the study with their followers on Facebook and in their newsletters, and via interest organisations for vulnerable road users, specifically the federations of Danish cyclists and pedestrians. In

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order to increase the number of participants, e-mails were sent to participants from a previous research project on cyclist safety (Lahrmann *et al.*, in press). Furthermore, the study was promoted through a press release with information about the study and information on how to sign up as volunteer for the study. The press release reached multiple local newspapers and the local news. In addition to the brief information provided in mails, a webpage was created to provide more thorough description of the study.

In Spain, several actions were initiated to recruit volunteers for the study: advertisement in one of the biggest online newspapers, which has more than 250,000 daily views, interviews in the radio to inform about the study, contact to local associations (e.g. for accident prevention and cyclists) and contact to private companies and personal contacts. Furthermore, information on the study was posted on the website of the municipality of Barcelona and via social media (LinkedIn).

In Sweden, recruitment of participants was made via social media (Facebook, Twitter) in groups for the municipality of Lund, for cyclists in Malmö and for students at Lund University. Furthermore, information was posted on online forums for cyclists. In addition, the pedestrian association and the National Society for Road Safety distributed information about the study on their websites.

Table 1: Recruitment actions.

Belgium	Denmark	Spain	Sweden
Social media (Twitter, Facebook, LinkedIn)	Social media (Facebook, LinkedIn)	Social media (LinkedIn)	Social media (Twitter, Facebook)
Newspapers, local TV	Local newspapers, local TV	Advertisement in online newspaper	Online forums for cyclists
Interest organizations (traffic knowledge, cyclist and pedestrian associations)	Interest organizations (cyclist and pedestrian associations)	Radio interview	Interest organizations (road safety society, pedestrian association)
Flemish universities, graduate schools, municipalities, provinces, companies	Danish municipalities	Interest organizations (accident prevention foundation, cyclist association, etc.)	
All employees and students at Hasselt University	Participants from previous project		
Participants from previous projects			

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The recruitment was carried out in August 2016 (Belgium, Denmark), September 2016 (Belgium, Denmark, Sweden and Spain) and October 2016 (Sweden and Spain). The study was open for new participants throughout the study. Participants who signed up at a later stage were included from the following month.

Only respondents of 18 years or older were included in the study. Apart from the age criterion, no additional prerequisites should be met. However, due to the recruitment sources, most participants can be expected to travel frequently as pedestrian, cyclist or moped rider.

The recruitment of volunteers was conducted with varying degrees of success in the four countries. In Denmark and Belgium, 1434 and 836 road users participated in the study, respectively (Table 2). The majority of the participants in Denmark had previously participated in another study on cyclist safety. Similarly, contact to participants from previous studies may have contributed to the high number of participants in Belgium. Less than 40 participants signed up in Spain and Sweden despite large efforts to recruit participants.

Table 2: Participants.

	Belgium	Denmark	Spain	Sweden
App	177	277	19	26
Web	659	1157	17	11
Total	836	1434	36	37

Table 3 shows the demographic characteristics of the participants. Roughly as many women as men signed up in Denmark and Belgium. In Sweden and Spain, the majority (~70 %) of the participants are male. In Belgium, Spain and Sweden, participants are on average approx. 40 years old, whereas the Danish participants are significantly older with a mean age of 51.5 years. The age distribution is shown in Figure 1.

Table 3: Demographic characteristics of participants.

	Belgium (n=836)	Denmark (n=1434)	Spain (n=36)	Sweden (n=37)
Mean age	39.4 years (SD: 14.0)	51.5 years (SD: 12.4)	41.4 years (SD: 12.0)	40.1 years (SD: 11.0)
Gender				
Female	52.8 %	46.1 %	27.8 %	29.7 %
Male	47.2 %	53.9 %	72.2 %	70.3 %

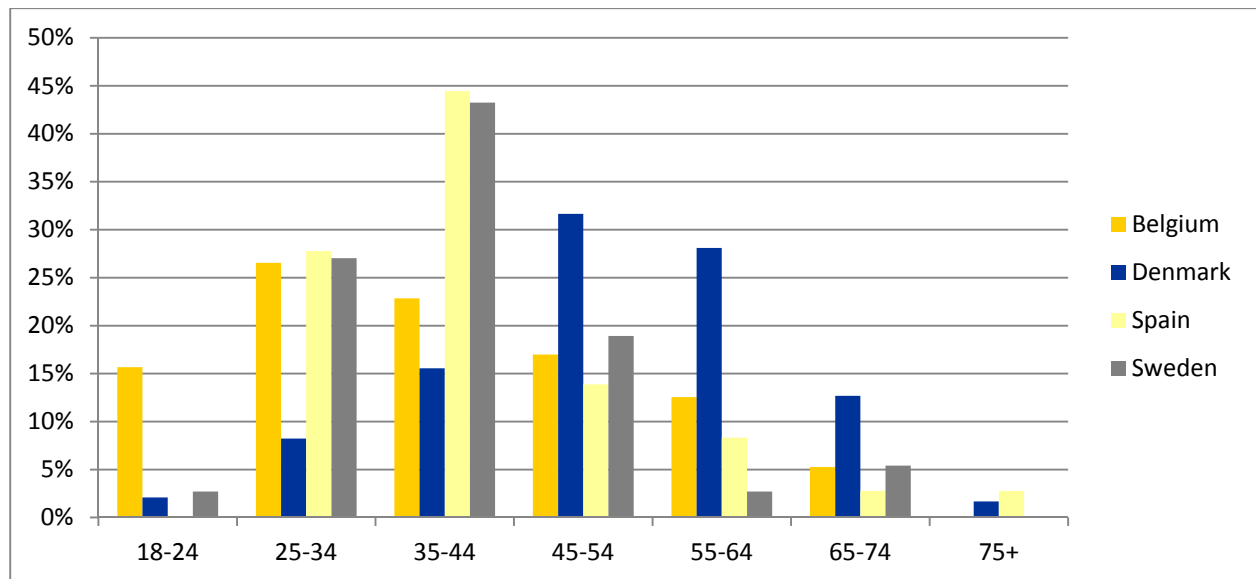


Figure 1: Age distribution of participants.

3.3. Data collection

The study was carried out for a period of nine months (01.09.2016-31.05.2017). At the beginning of each month, participants who had signed up for using the web-based questionnaire received an email with a link to the online questionnaire. The first questionnaire was sent on October 1st, 2016, in which they were asked to register information regarding accidents and near-accidents for the past month, i.e. for September 2016. The final questionnaire was sent on June 1st, 2017. Participants who installed the app could register accidents and near-accidents from the moment they had installed the app.

The responses from the questionnaire were automatically saved in a database, from which they could be extracted for further processing of responses.

Table 4 shows the monthly response rate for participants answering the app and web questionnaires, respectively.

Table 4: Monthly response rate. The month refers to the month in which the app participants have responded the questionnaire and which the web participants should recall when answering the questionnaire.

	Belgium (app web)		Denmark (app web)		Spain (app web)		Sweden (app web)	
September 2016	19%	80%	40%	94%	32%	82%	38%	82%
October 2016	9%	75%	10%	94%	5%	82%	23%	73%
November 2016	21%	73%	9%	94%	11%	82%	8%	91%
December 2016	25%	75%	34%	95%	16%	76%	19%	73%
January 2017	14%	74%	30%	95%	16%	82%	19%	82%
February 2017	7%	72%	26%	95%	21%	71%	23%	64%
March 2017	8%	70%	25%	94%	16%	71%	15%	55%
April 2017	6%	71%	20%	94%	0%	82%	15%	64%
May 2016	9%	70%	28%	94%	16%	65%	12%	64%

Generally, the response rates for the web questionnaire are higher than for the app. While the web participants received a monthly email with a link to the questionnaire, only app participants who had enabled notifications from apps on their smartphone received a monthly notification. Therefore, the app respondents mainly answered if they had anything to register. Particularly, the app respondents have answered the questionnaire during the winter months. Therefore, they may have experienced more accidents due to slippery roads. The majority of the participants have answered the web questionnaire. In Belgium, Spain and Sweden there is a tendency to lower response rates towards the end of the study. This is not the case for the Danish participants, among whom the response rate is stable and very high (94-95%) during the whole study.

Table 5 shows the distribution of participants who answered the questionnaire for 0, 1, 2, etc. months of the study. Similarly to Table 4, this shows that app respondents in general only registered accidents and near-accidents for a few months whereas web respondents were more consistent in answering the questionnaires.

Table 5: Share of participants answering the questionnaire various number of months.

	Belgium (app web)		Denmark (app web)		Spain (app web)		Sweden (app web)	
0	40.1%	7.6%	27.4%	1.3%	21.1%	0.0%	30.8%	9.1%
1	32.2%	7.6%	28.5%	0.8%	52.6%	0.0%	38.5%	9.1%
2	14.1%	5.5%	11.9%	0.5%	10.5%	17.6%	3.8%	0.0%
3	4.5%	2.1%	6.1%	0.8%	10.5%	0.0%	7.7%	0.0%
4	2.8%	3.5%	5.4%	0.4%	0.0%	0.0%	7.7%	9.1%
5	4.0%	2.7%	4.0%	1.0%	5.3%	0.0%	0.0%	9.1%
6	1.7%	5.0%	8.7%	0.9%	0.0%	17.6%	7.7%	0.0%
7	0.6%	3.9%	5.8%	4.1%	0.0%	5.9%	3.8%	0.0%
8	0.0%	9.4%	1.8%	7.6%	0.0%	17.6%	0.0%	18.2%
9	0.0%	52.7%	0.4%	82.5%	0.0%	41.2%	0.0%	45.5%

3.4. Questionnaires

The study used two types of questionnaires; a sign up questionnaire and an accident questionnaire. The questionnaire was translated into Danish, Swedish, Dutch and Catalan.

In the sign up questionnaire, which the respondents answered to enrol in the study, they provided demographic information (gender, age, zip code) as well as contact information (e-mail) in order to send them a monthly accident questionnaire. Furthermore, a declaration of consent needed to be given in order to give permission for using the collected data. Appendix 2 illustrates the content of the sign up questionnaire.

In the accident questionnaire, the participants could indicate if they had been involved in any road traffic accidents or near-accidents. If confirming that they had, they could provide detailed information regarding the nature of the events. The questions in the accident questionnaire concerned the time of the accident, their mode of transportation, what happened in the accident, whether other road users were involved and their mode

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of transportation, weather conditions, road surface conditions as well as questions regarding accident causation factors (e.g. being influenced by alcohol/drugs/medicine, fatigue, distraction). Furthermore, they were asked to provide a textual description of the accident or near-accident. Appendix 3 illustrates the questions used in the accident questionnaire.

Four classification questions (yes/no) were used to classify the type of event that the participant wanted to register in the accident questionnaire:

1. Have you or your means of transport been in physical contact with another road user or vehicle?
2. Did you crash/fall/get hurt/damage some of your personal belongings?
3. Were you so close to collide with another road user that it felt uncomfortable?
4. Did you or the other road user make an evasive manoeuvre (e.g. brake, accelerate, change direction) in order to avoid a collision?

These questions represented the definitions of an accident and a near-accident used in the study. If the road user had been in physical contact with another road user or a vehicle, or if the participant had crashed/fallen or sustained any injuries or damages in the event (confirmation of at least one of the questions 1 and 2), the event was classified as an accident. In this case, the participant was asked to fill in detailed information about the accident.

If the road user had been close to colliding with another road user to a degree where it felt uncomfortable or had to make an evasive manoeuvre (confirmation of at least one of the questions 3 and 4), the event was classified as a near-accident. In this case, the respondent was asked to provide information about time and location, means of transport for themselves and the counterpart and a text description of what happened in the near-accident. The lower level of information to be provided was chosen because it was assumed that participants would encounter more near-accidents than accidents. Therefore, if they had to provide a lot of information, it was likely that they would not register all their near-accidents.

If the participant answered ‘no’ to all four questions, the encounter was considered neither an accident nor a near-accident, and the participant was asked to provide a text describing what happened.

For accidents outside the scope of the study (i.e. if the participant was non-VRU or it occurred outside public roads), the participant only had to describe the accident in text.

The questionnaires were made available on two platforms; an Android app (Figure 2) and via an online questionnaire.

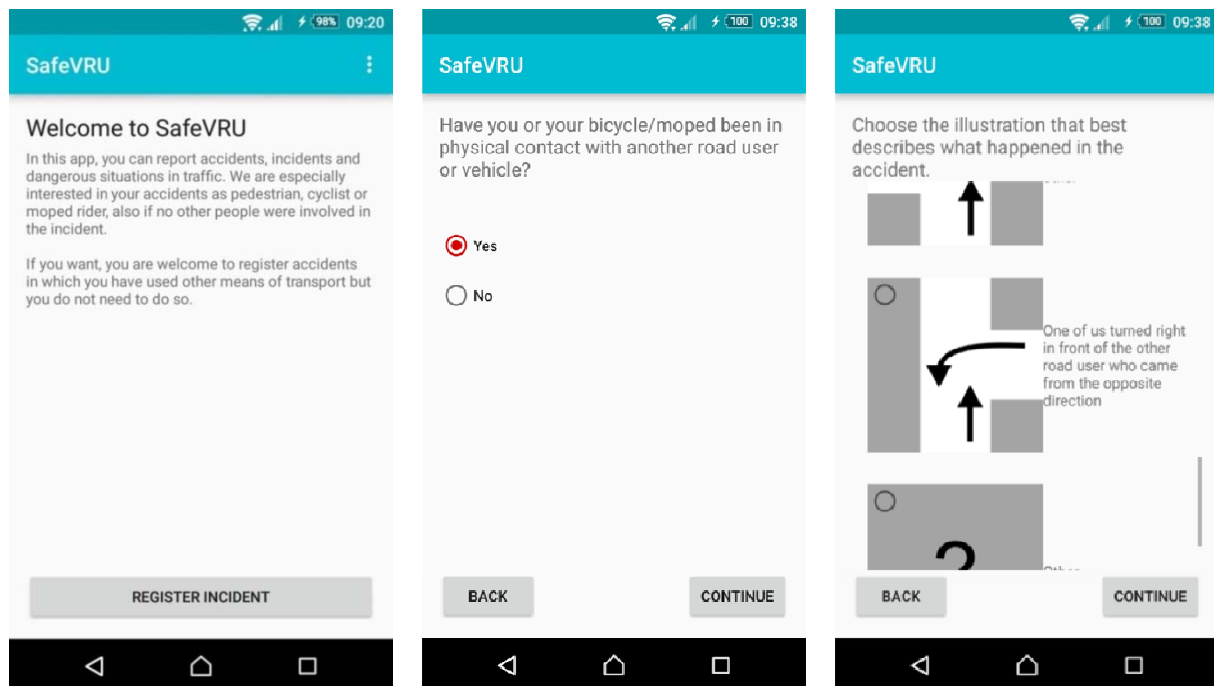


Figure 2: The SafeVRU app.

3.5. Data cleaning

All responses of the sign up questionnaires were checked in order to remove duplicate users (e.g. participants signing up via both platforms or signing up twice). Similarly, the responses of the accident questionnaires were analysed with the purpose of ensuring that all responses met the following inclusion criteria. Responses that did not meet the following criteria were excluded from the further analysis:

- The participant must have travelled by foot, on bicycle or on a moped when the incident occurred
- The incident occurred on public roads (i.e. trips in the forest, at the beach, etc. are removed)
- The incident occurred in the particular country
- The participant has completed the questionnaire (i.e. incomplete responses are removed)

4. Results

4.1. Number of reported accidents and near-accidents

In total, 348 accidents and 1360 near-accidents in which the participants have been travelling as pedestrian, cyclist or moped rider were registered by the participants in the four countries. Furthermore, 29 events were registered that could not be classified into accidents or near-accidents via the four classification questions. Table 6 shows the number of registered accidents and near-accidents with vulnerable road users in each country.

The participants could also register accidents and near-accidents when using another means of transport. Apart from their incidents as vulnerable road users, the participants registered 36 accidents and 247 near-accidents in a motorised vehicle in Belgium. In the other countries the participants registered few accidents (Denmark: 4, Spain: 5, Sweden: 0) and near-accidents (Denmark: 22, Spain: 5, Sweden: 1) when using a motorised vehicle.

Table 6: Registered VRU accidents and near-accidents.

	Belgium	Denmark	Spain	Sweden
Accidents	121	210	2	15
Near-accidents	618	696	13	33
Not classified	21	8	0	0

Most participants (73-94.4%) did not get involved in an accident as a vulnerable road user during the study (Table 7). In Belgium and Denmark the accident rates are similar; approx. 89% were not involved in any accidents, while approx. 9% experienced one accident during the study.

More participants experience a near-accident than an accident (Table 8), but the rates differ among the four countries. In Belgium, Sweden and Denmark, 25.7-30.5% of the participants have registered at least one near-accident, while only 13.9% of the participants in Spain have registered near-accidents.

The number of experienced accidents and near-accidents differed among the participants within the country. Whereas most participants registered few events, one of the Danish participants registered 39 near-accidents and 7 accidents. A review of the descriptions of each event indicates that this participant is a frequent cyclist and travels many kilometres per week for leisure. Similarly, two of the Flemish participants registered as much as 15 and 17 near-accidents, and one of the Swedish participants registered 10 near-accidents and 4 accidents. This variation reflects the difference within the group of participants, where some road users travel little on bike or by foot and some travel a lot and are thus more exposed to accidents and near-accidents.

Table 7: Accidents registered by each participant. Only events in which the participant has travelled as pedestrian, cyclist or moped rider are included.

	Belgium (n=836)	Denmark (n=1434)	Spain (n=36)	Sweden (n=37)
0	744 (89.0%)	1269 (88.5%)	34 (94.4%)	27 (73.0%)
1	73 (8.7%)	132 (9.2%)	2 (5.6%)	7 (18.9%)
2	11 (1.3%)	28 (2.0%)	0 (0.0%)	2 (5.4%)
3	6 (0.7%)	1 (0.1%)	0 (0.0%)	0 (0.0%)
4	2 (0.2%)	3 (0.2%)	0 (0.0%)	1 (2.7%)
5+	0 (0.0%)	1 (0.1%)	0 (0.0%)	0 (0.0%)

Table 8: Near-accidents registered by each participant. Only events in which the participant has travelled as pedestrian, cyclist or moped rider are included.

	Belgium (n=836)	Denmark (n=1434)	Spain (n=36)	Sweden (n=37)
0	581 (69.5%)	1065 (74.3%)	31 (86.1%)	26 (70.3%)
1	117 (14.0%)	215 (15.0%)	3 (8.3%)	3 (8.1%)
2	51 (6.1%)	89 (6.2%)	0 (0.0%)	4 (10.8%)
3	43 (5.1%)	30 (2.1%)	1 (2.8%)	1 (2.7%)
4	18 (2.2%)	16 (1.1%)	0 (0.0%)	1 (2.7%)
5	8 (1.0%)	7 (0.5%)	0 (0.0%)	1 (2.7%)
6	4 (0.5%)	6 (0.4%)	0 (0.0%)	0 (0.0%)
7	5 (0.6%)	2 (0.1%)	1 (2.8%)	0 (0.0%)
8+	9 (1.1%)	4 (0.3%)	0 (0.0%)	1 (2.7%)

Due to the low number of registered events in Spain and Sweden, the data from these countries is not included in the further analysis.

4.2. Location

Figure 3 and Figure 4 illustrates the locations of the accidents and near-accidents. In Belgium, the events are distributed evenly in the northern part of the country. Only few events have been registered in the southern part, mainly because information on the study was distributed only to road users in the northern part.

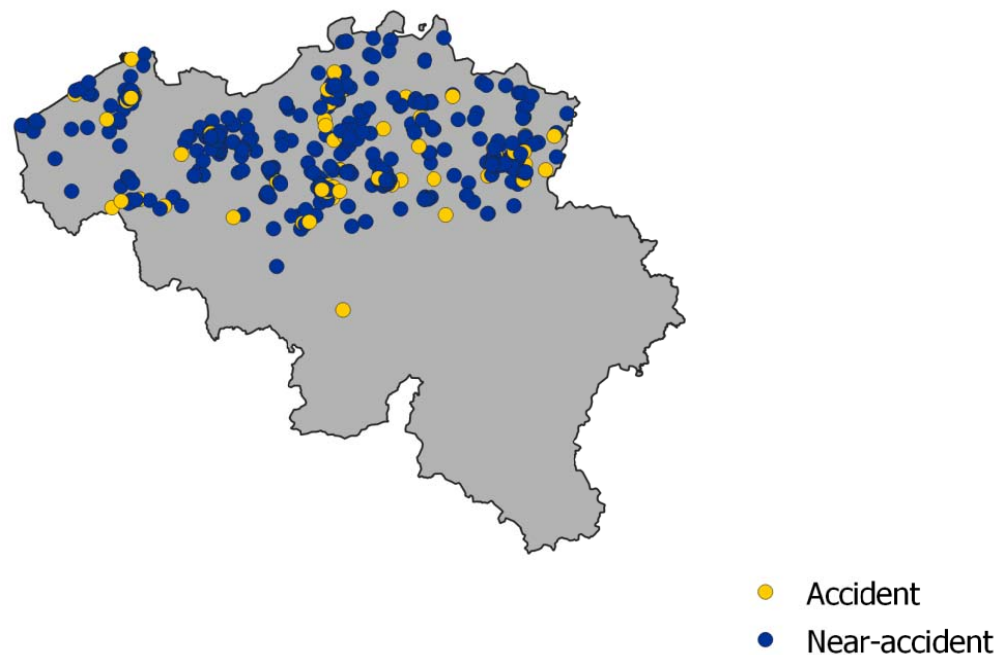


Figure 3: Registered VRU accidents and near-accidents in Belgium (n=676).

The events registered by the Danish participants are spread across the country but with a higher density in the biggest cities and in particular in and around Copenhagen.

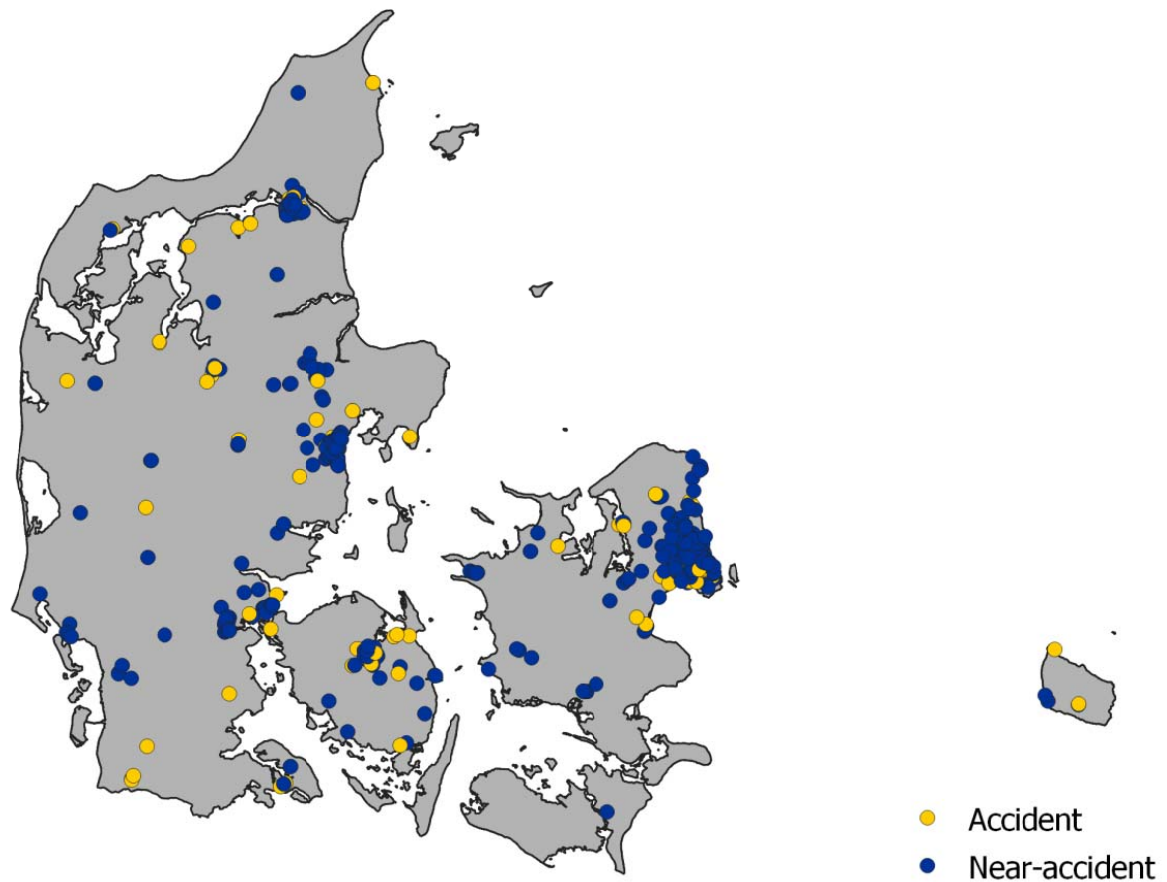


Figure 4: Registered VRU accidents and near-accidents in Denmark (n=820)

4.3. When do the incidents happen?

The number of registered accidents and near-accidents decreases throughout the study (Figure 5), with a slight increase in both countries for the last few months of the study (April, May). In Belgium, the months with the highest number of registered incidents were September and November. In Denmark, there was an increase in the number of registered events in January compared to the months before and after.

Most accidents and near-accidents occurred on weekdays (Figure 6). In Denmark, most events are registered on Tuesdays, while the Belgian participants were involved in most accidents and near-accidents on Tuesdays and Thursdays.

The number of registered events is higher in the morning and afternoon peak hours compared to the rest of the day (Figure 7). In Belgium, most events are registered from 8.00-9.00 in the morning and from 17.00-18.00 in the afternoon. 35% of all registered events have occurred within those two hours of the day. The same pattern is seen in Denmark, but one hour earlier, i.e. from 7.00-8.00 and from 16.00-17.00. 31% of the events were registered in this time interval. This may reflect a difference in the working hours between the countries.

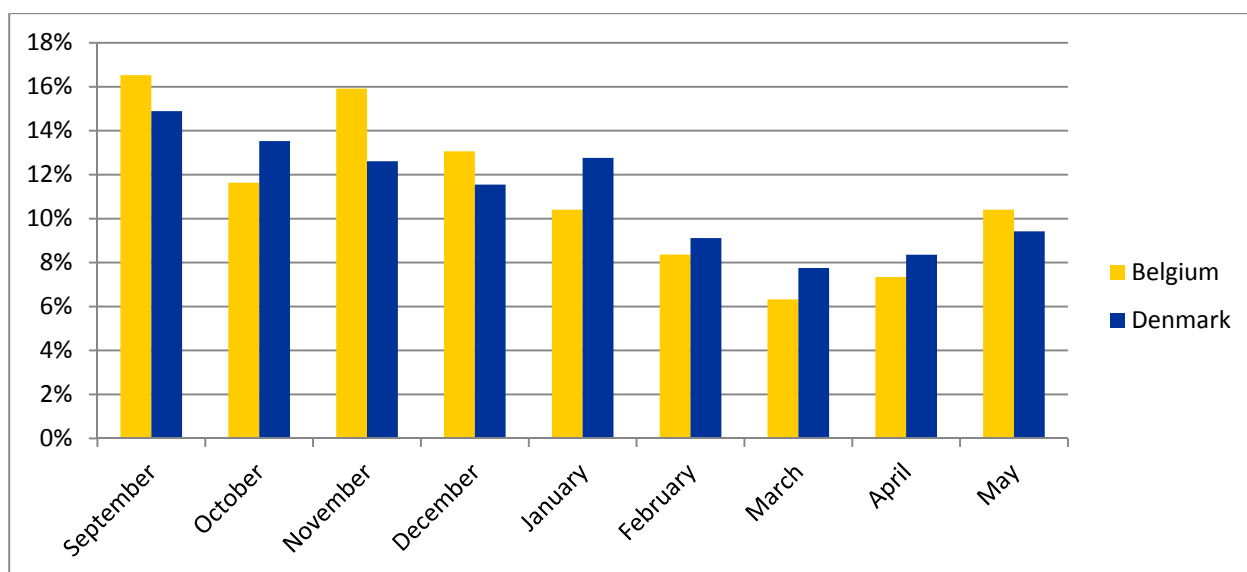


Figure 5: Distribution of accidents and near-accidents registered per month of the study in Belgium (n=490) and Denmark (n=658). Data table shown in Appendix 4, Table 12.

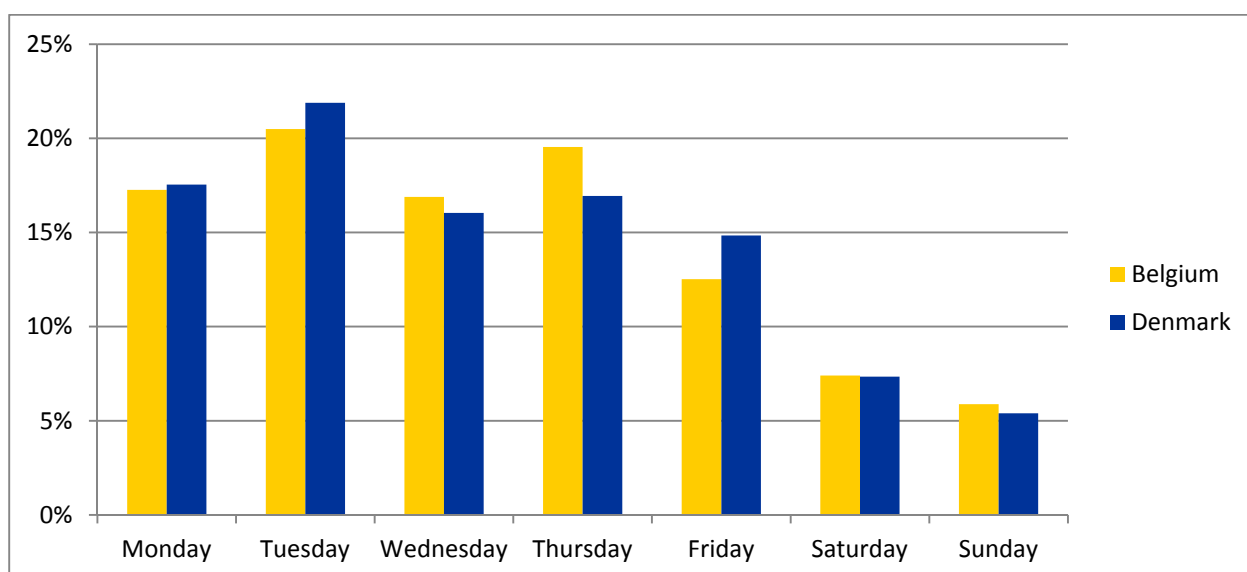


Figure 6: Distribution of accidents and near-accidents throughout the week in Belgium (n=527) and Denmark (n=667). Data table shown in Appendix 4, Table 13.

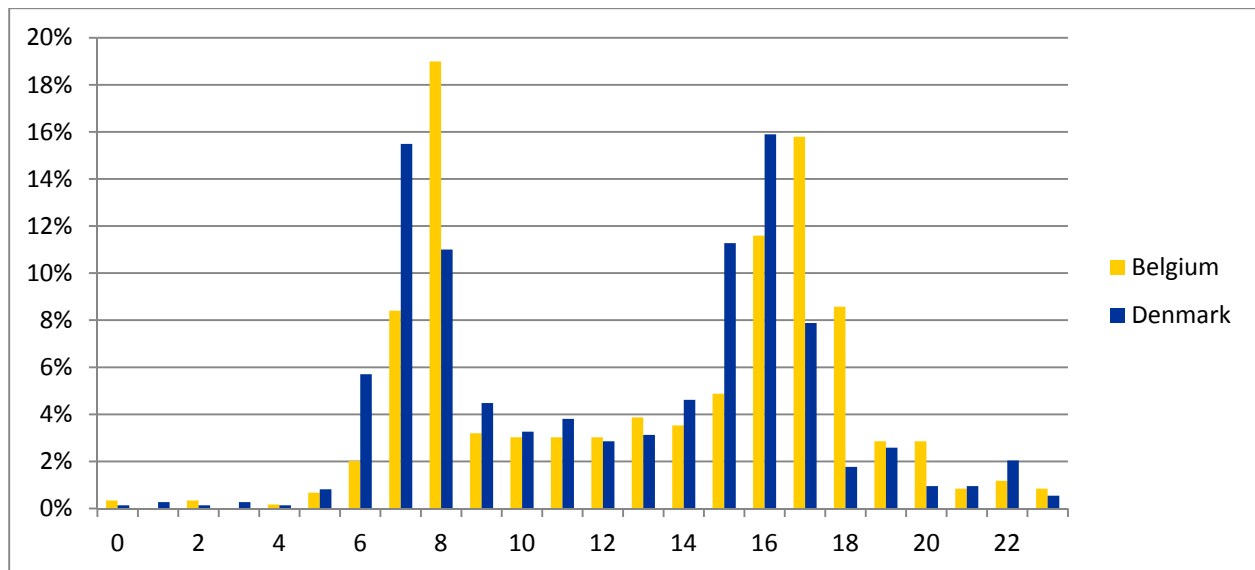


Figure 7: Time (hour) for the occurrence of VRU accidents and near-accidents in Belgium (n=595) and Denmark (n=736). Data table shown in Appendix 4, Table 14.

4.4. Means of transport

Approx. 90% of the registered events occurred when the participants were cycling (Table 9). The rest of the accidents and near-accidents (7-10%) occurred when the participants travelled as pedestrians. Only few events were registered when the participants travelled as vulnerable road users by other means of transport, e.g. on a moped. Of those who reported cycling accidents, 6.2% of the Danish cyclists and 16.7% of the Belgian cyclists used an electric bicycle.

Table 9: Own means of transport when involved in an accident (Belgium: n=121, Denmark: n=210) or near-accident (Belgium: n=616, Denmark: n=697).

	Belgium (accidents near-accidents)		Denmark (accidents near-accidents)	
Bicycle	108 (89%)	561 (91%)	195 (93%)	639 (92%)
By foot	12 (10%)	53 (9%)	14 (7%)	53 (8%)
Moped	0 (0%)	0 (0%)	0 (0%)	4 (1%)
Other	1 (1%)	2 (0%)	1 (0%)	0 (0%)

Figure 8 shows the distribution of cycling and pedestrian accidents as single and multiparty accidents, respectively. In 57% of the accidents, independently of means of

transport of the participant, there was a counterpart involved in Denmark. In Belgium, multiparty accidents comprised approx. two thirds of all registered accidents.

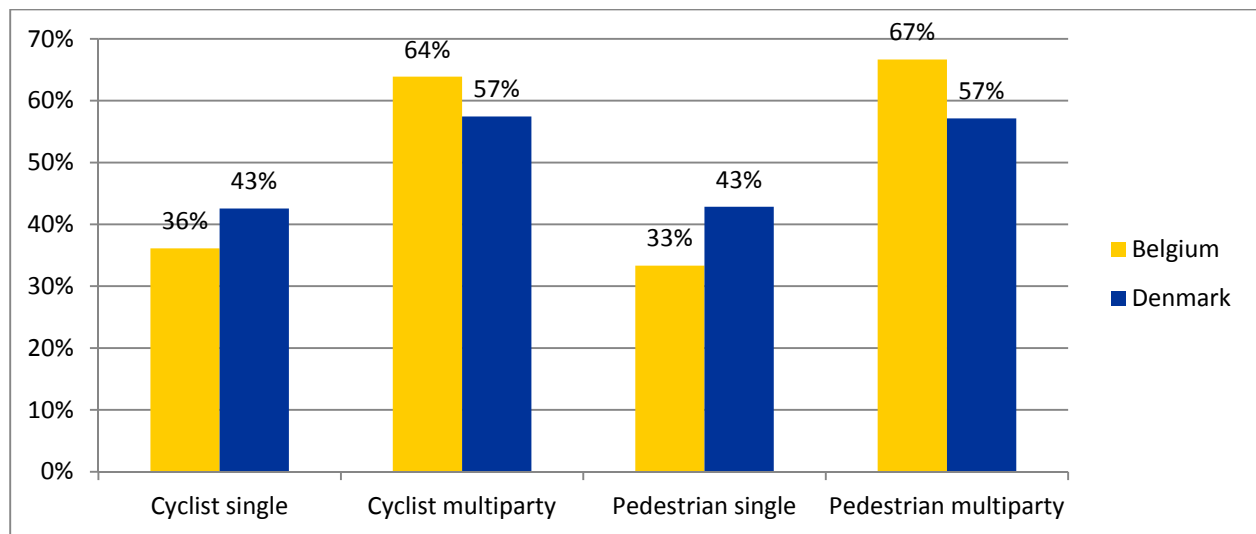


Figure 8: Single and multiparty accidents for cyclists and pedestrians in Belgium (n=120) and Denmark (n=209). Data table shown in Appendix 4, Table 15.

When being involved in a multiparty cycling accident, the counterpart is most frequently a car in Belgium, whereas the Danish cyclists experienced that cars and other cyclists contributed equally as the counterpart in the accident. For near-accidents (Figure 10), cars are the most frequent counterpart. The lower share of cyclist-cyclist near-accidents compared to cyclist-cyclist accidents may be explained by the fact that the participating cyclist may not always notice if another cyclist has to perform an evasive manoeuvre to avoid a collision.

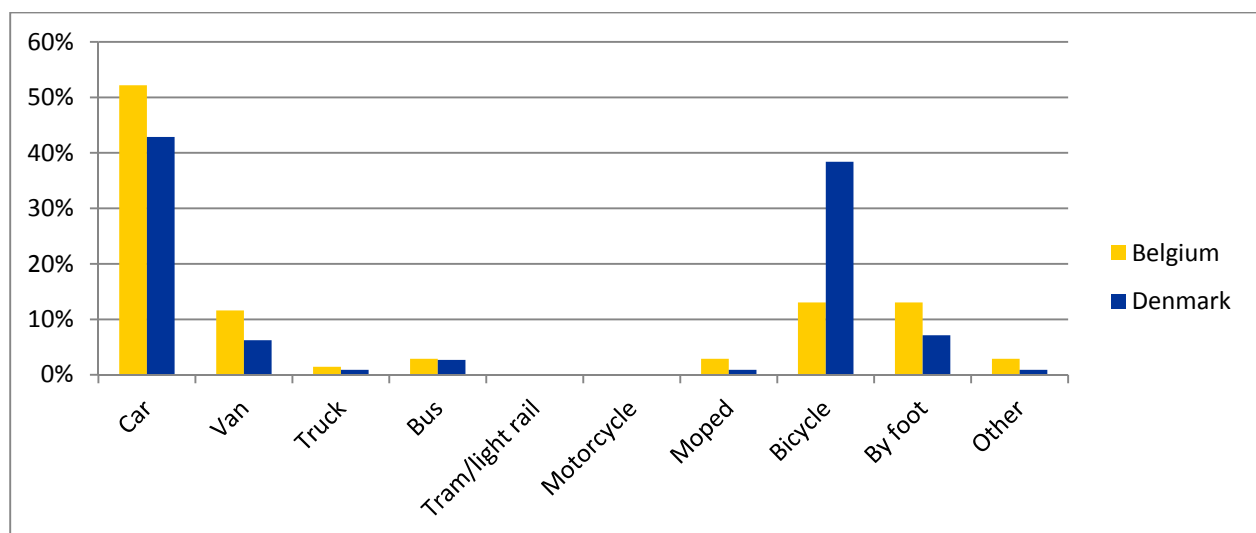


Figure 9: Counterpart's means of transport in cycling accidents (Belgium: n=69, Denmark: n=112). Data table shown in Appendix 4, Table 16.

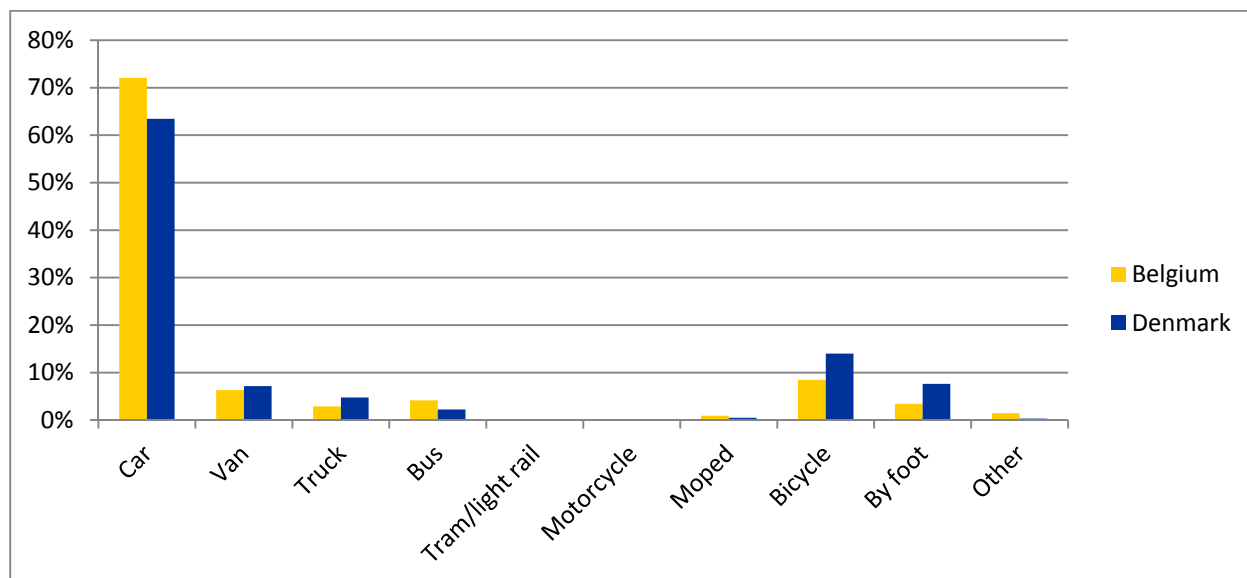


Figure 10: Counterpart's means of transport in cycling near-accidents (Belgium: n=555, Denmark: n=629). Data table shown in Appendix 4, Table 16.

In the study, the pedestrians have experienced that cars and cyclists are the most frequent counterpart in both accidents and near-accidents. In Denmark, 63% of the pedestrians had an accident with a cyclist, whereas the Belgian pedestrians mainly were involved in accidents with cars (75%). For near-accidents, 60% of the Danish and 74% of the Belgian pedestrians experienced that a car was close to colliding with them.

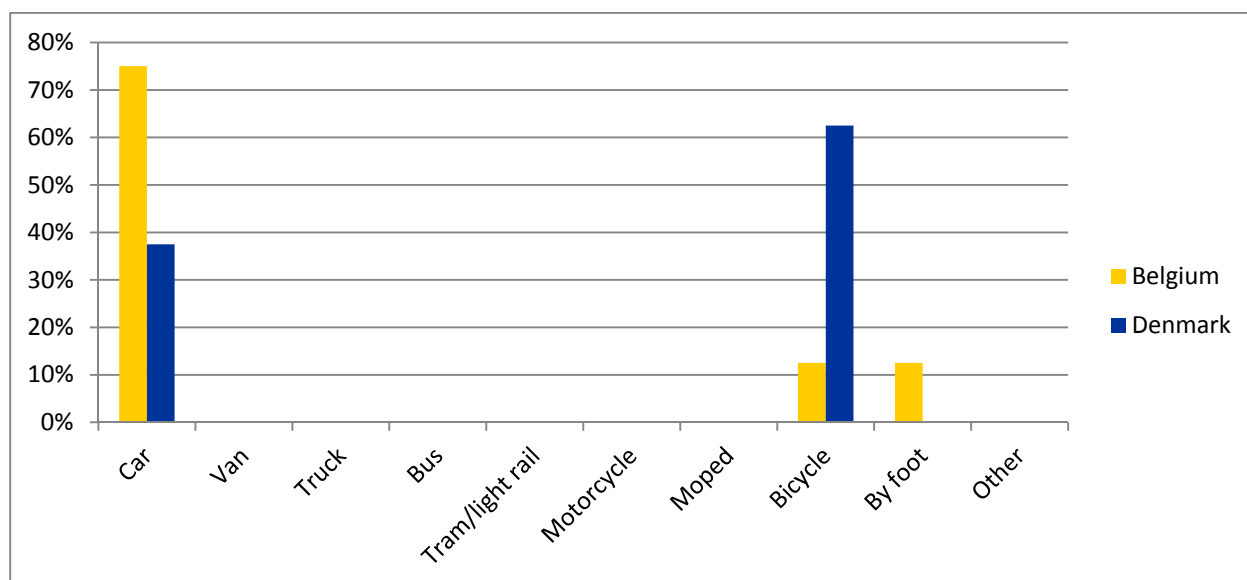


Figure 11: Counterpart's means of transport in pedestrian accidents (Belgium: n=8, Denmark: n=8). Data table shown in Appendix 4, Table 17.

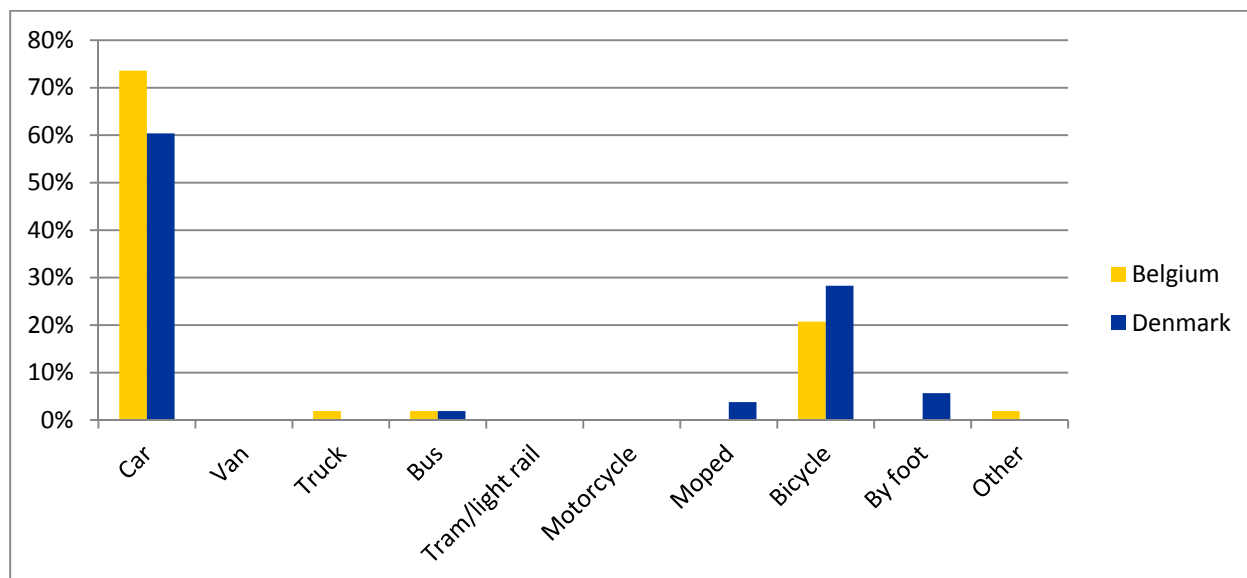


Figure 12: Counterpart's means of transport in pedestrian near-accidents (Belgium: n=53, Denmark: n=53). Data table shown in Appendix 4, Table 17.

4.5. Road types

Approx. 50% of the accidents have occurred at road sections, and approx. 45% have occurred on intersections and driveways (Figure 13). 48% of the accidents on intersections in Denmark were signalized. In Belgium, 35 % of the accidents on intersections were signalized. Less than 5% of the accidents occurred on roundabouts.

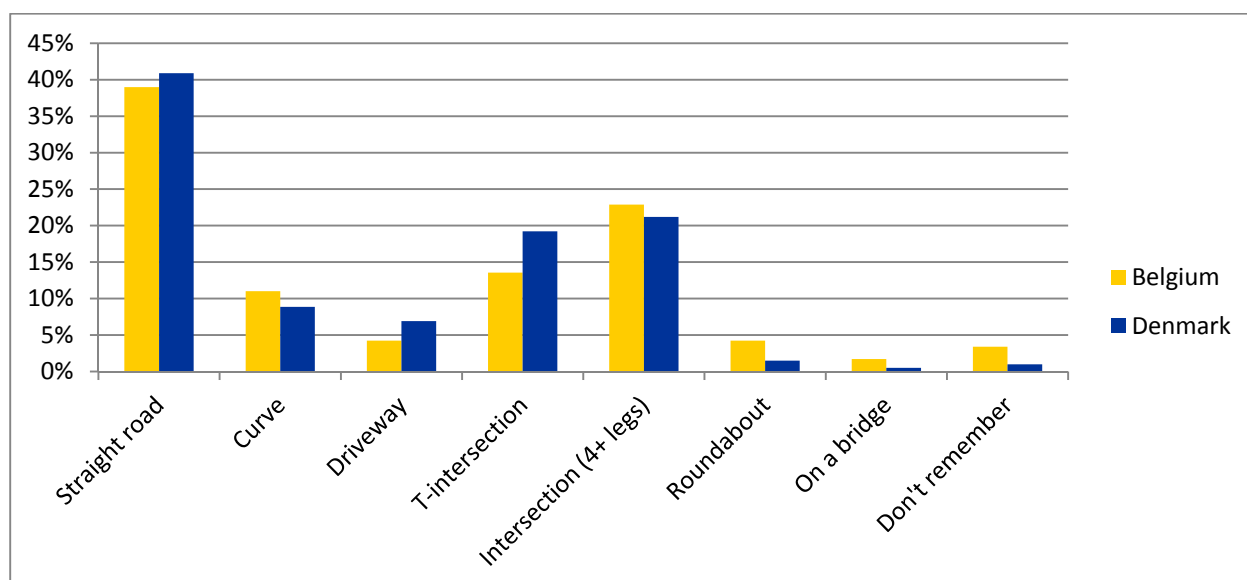


Figure 13: Road design at the location of the accident (Belgium: n=118, Denmark: n=203). Data table shown in Appendix 4, Table 18.

4.6. Weather and surface conditions

Figure 14 and Figure 15 illustrate the weather and road surface conditions when the accident happened. Intense sun and bad weather in terms of rain, snow, sleet or haze are the two most common weather types that may have influenced the occurrence of the accident. However, in 62-65% of the accidents, the weather has not likely played any role in the accident. In 12% of the accidents, slippery roads in wintertime may have influenced the outcome.

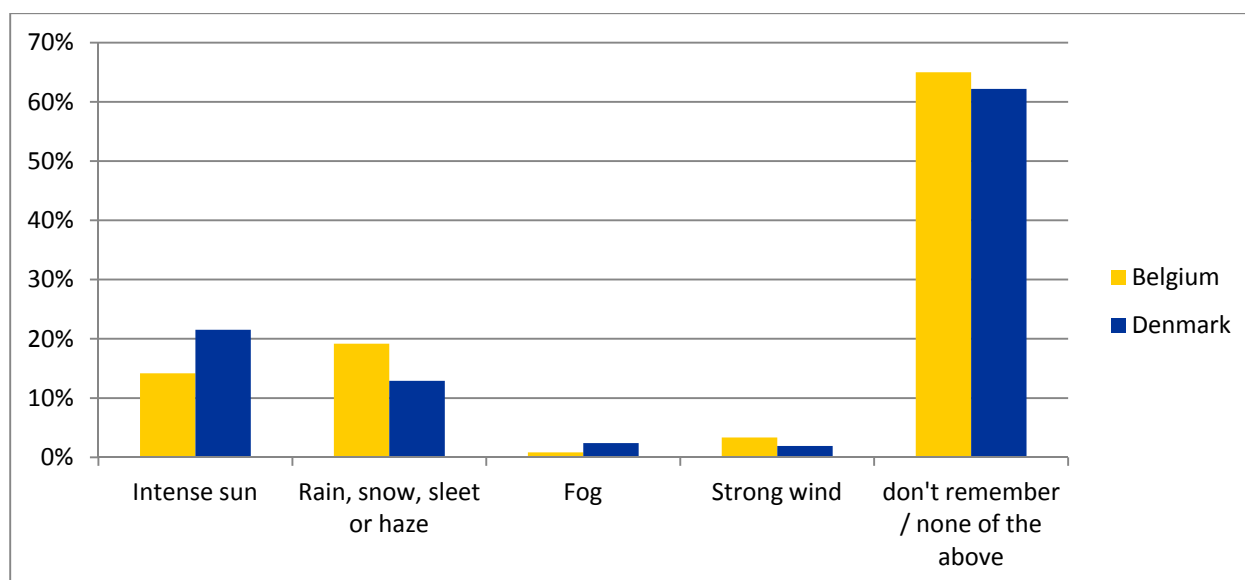


Figure 14: Weather conditions when the accident occurred (Belgium: n=120, Denmark: n=209). Data table shown in Appendix 4, Table 19.

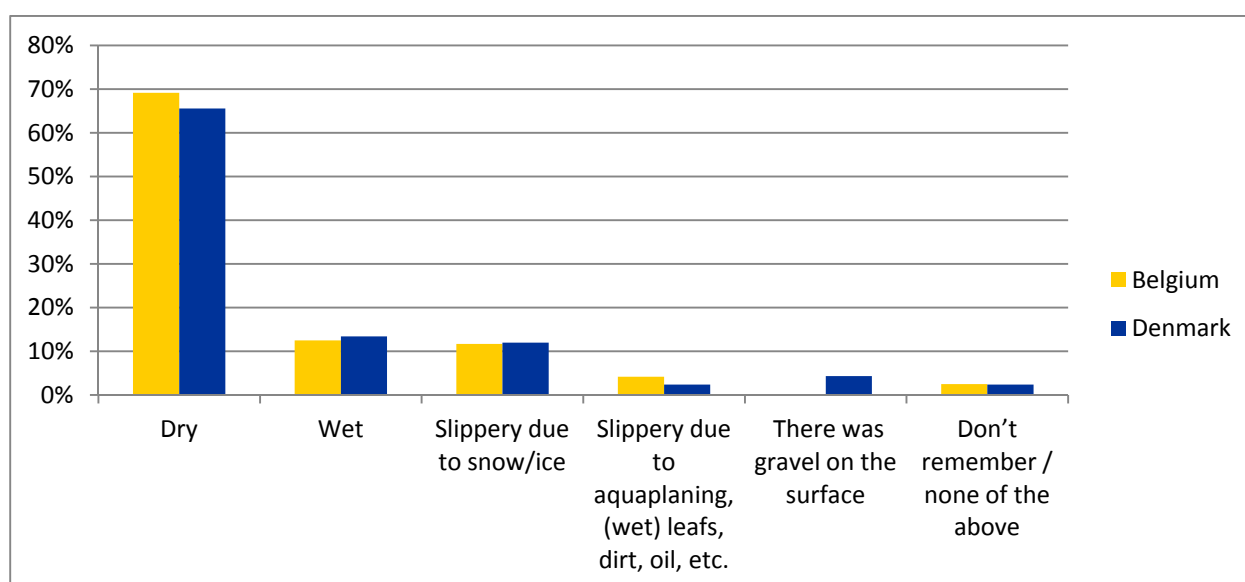


Figure 15: Road surface conditions when the accident occurred (Belgium: n=120, Denmark: n=209). Data table shown in Appendix 4, Table 20.

4.7. Lighting conditions

The majority of all accidents occurred in daylight (Figure 16). Considerable more accidents in Denmark than in Belgium occurred in darkness (10% vs. 22%).

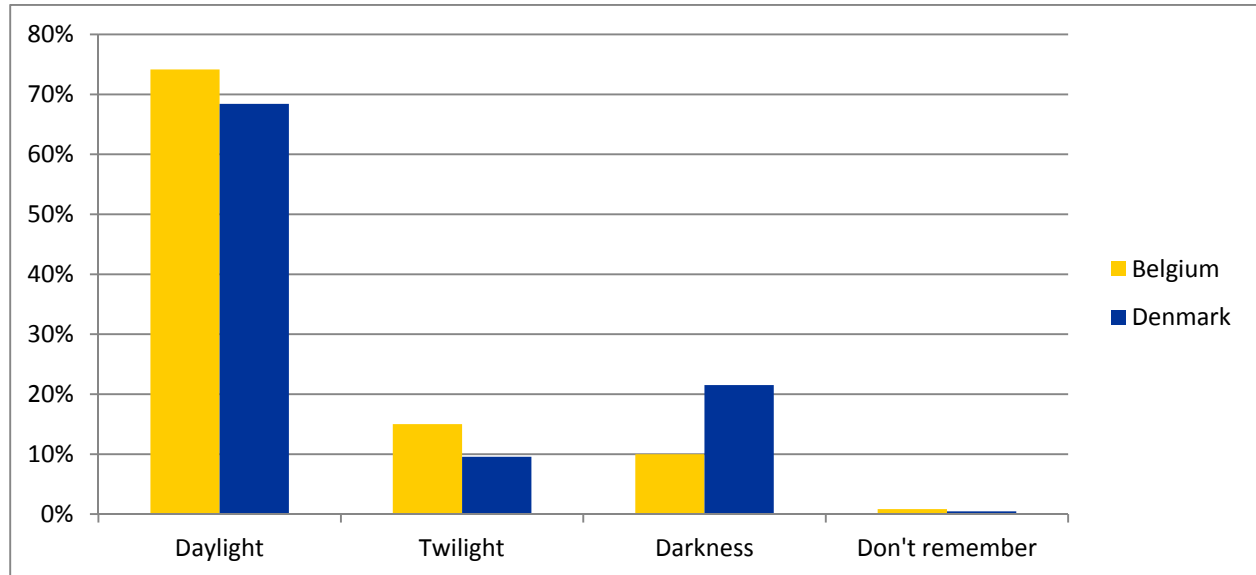


Figure 16: Lighting conditions when the accident occurred (Belgium: n=120, Denmark: n=209). Data table shown in Appendix 4, Table 21.

4.8. Frequent accident types





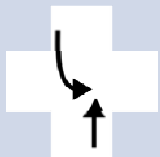
The participants were asked about the type of accident and could choose between a number of illustrations of potential accident types, see Appendix 3. The illustrations they could choose from depended on their answers to the preceding questions.


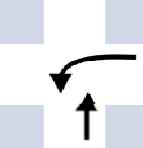


Table 10 shows the distribution of accident types registered by the participants. 57% of the Belgian and 66% of the Danish accidents were classified into one of the presented categories of accident types.

The most common accident type was single accidents where the participant had an accident without any influence from other road users, but for instance fell due to a slippery road, obstacles or animals. This type of accident occurred in 25% of the Belgian and 32% of the registered Danish accidents.

Other common accident types were rear-end collisions (including overtaking of another road user) and accidents in which the road users approach each other from the same direction and at least one of them makes a turning manoeuvre. The latter, for instance, includes accidents in which a right-turning vehicle and a cyclist going straight collide with each other. Rear-end collisions occurred in 8% of the Belgian and 12% of the Danish accidents, while respectively 6% and 11% of the cases were turning accidents.

Table 10: Accident types registered in the study (Belgium: n=119, Denmark: n=203). The category ‘single accident’ covers accidents with only one road user (cyclist, pedestrian or moped rider). These accidents may potentially be caused by obstacles or animals.

Accident type	Belgium (n=119)	Denmark (n=203)
 Single	30 (25%)	65 (32%)
 Rear-end collisions	9 (8%)	25 (12%)
 Head-on collisions	3 (3%)	2 (1%)
 Turning accidents, vehicles from same direction	7 (6%)	22 (11%)
 Turning accidents, vehicles from opposite directions	3 (3%)	2 (1%)

Accident type	Belgium (n=119)	Denmark (n=203)
 Vehicles going straight from different roads	2 (2%)	2 (1%)
 Turning vehicles from different roads	5 (4%)	6 (3%)
 Parked vehicles	1 (1%)	0 (0%)
 Pedestrian	7 (6%)	10 (5%)
Other	23 (19%)	31 (15%)
Undefined	29 (24%)	38 (19%)

4.9. Injuries

Most participants sustained no or minor injuries (grazes, cuts or bruises) in the accident (Figure 17). In 13-14% of the accidents, the participant had a sprain or twist from the accident, while a few per cent of the participants experienced more severe injuries.

More Danes than Belgians have had injuries in the accidents, also among the more severe kinds such as fractured bones and concussions.

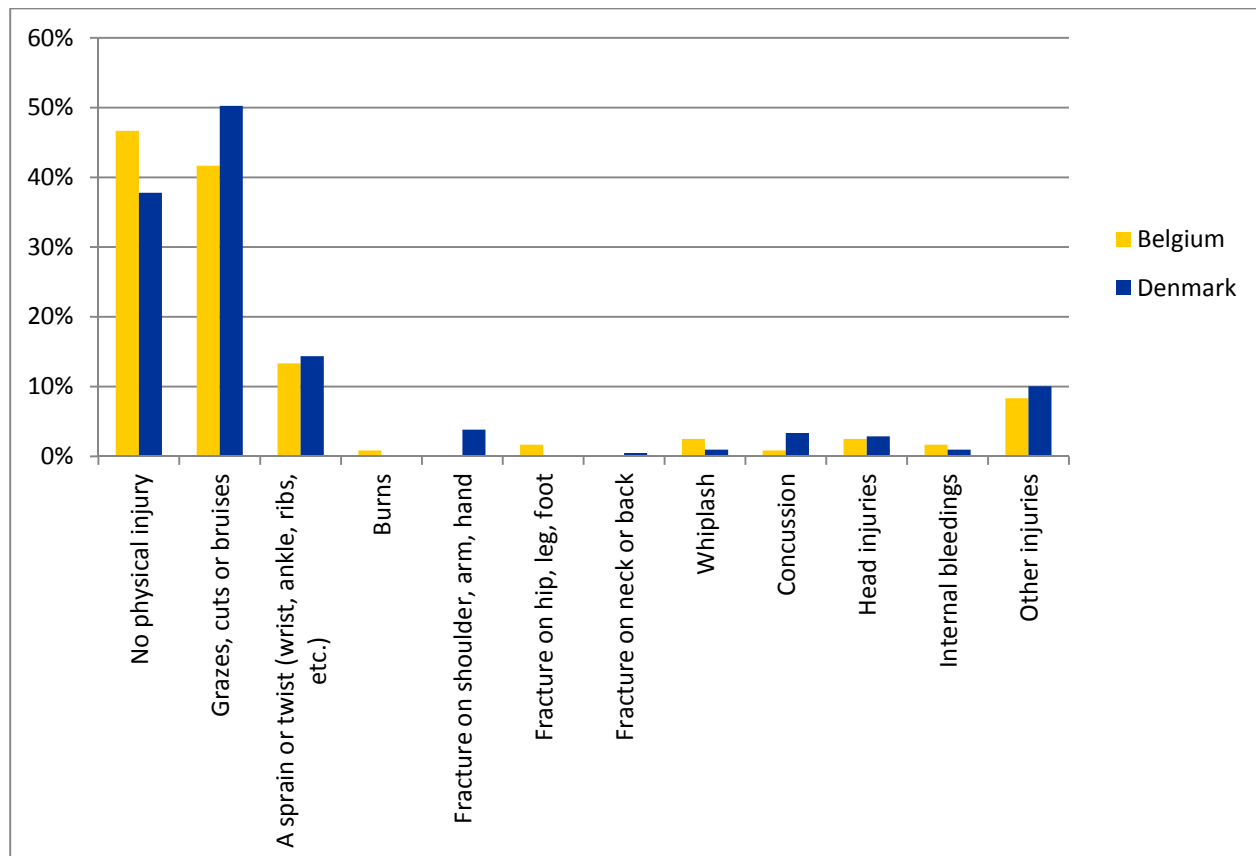


Figure 17: Injuries sustained by the participating cyclist, pedestrian or moped rider in the accident. The participants may have registered multiple injuries (Belgium: n=120, Denmark: n=209). Data table shown in Appendix 4, Table 22.

4.10. Contact with health services, police and insurance company

74% of the Belgian participants and 79% of the Danish participants have not been in contact with the health services, the police or their insurance company. Therefore, these accidents are typically not registered anywhere. Only 2% of the Danish and 7% of the Belgian participants have been in contact with the police regarding their accident and 9% have visited the emergency room/hospital for treatment.

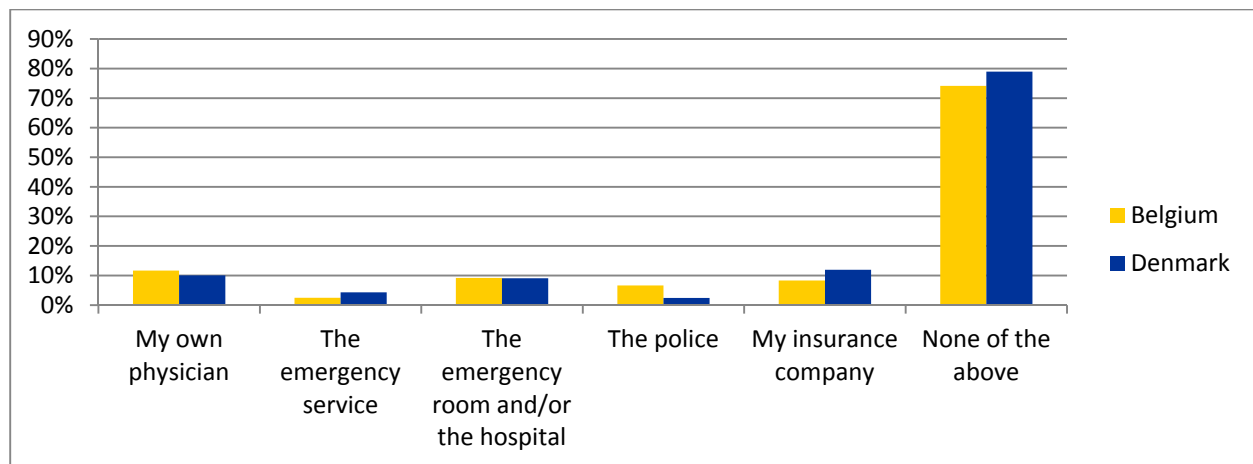


Figure 18: Participants contact to health services, the police and insurance company (Belgium: n=120, Denmark: n=209). The respondents could choose more than one option. Data table shown in Appendix 4, Table 23.

4.11. Contributory factors

Table 11 gives an overview of contributory factors that may have influenced the outcome. Most participants, however, have registered that none of the options applied for their accidents. Among the remaining participants, the most frequent statement was that they thought that the other road user was aware of their presence (but that they were not) (Belgium: 20%, Denmark: 23%) or that the participant did not see the other road user (Belgium: 6%, Denmark: 3%), and that they were in a hurry (Belgium: 8%, Denmark: 9%).

Table 11: Contributory factors.

	Belgium (n=120)	Denmark (n=209)
I was in a hurry	9 (8%)	18 (9%)
I was tired	6 (5%)	7 (3%)
I was under the influence of alcohol, drugs or medicine	1 (1%)	7 (3%)
I was listening to music	3 (3%)	2 (1%)
I was talking with another person	2 (2%)	5 (2%)

	Belgium (n=120)	Denmark (n=209)
I was talking on the phone: hands-free	0 (0%)	0 (0%)
I was talking on the phone: handheld	0 (0%)	1 (0%)
I was immersed in my own thoughts	4 (3%)	10 (5%)
I was using my phone (for other purposes than talking)	0 (0%)	0 (0%)
I was distracted (e.g. looking at another road user, a sign, a store)	2 (2%)	6 (3%)
I was ill/not feeling well	1 (1%)	1 (0%)
My bicycle/moped had a mechanical failure (e.g. flat tire, broken chain, jammed brakes)	1 (1%)	3 (1%)
I thought the other road user was aware of my presence	24 (20%)	48 (23%)
I did not see the other road user	7 (6%)	6 (3%)
None of the above	76 (63%)	114 (55%)

5. Conclusions

In this study, self-reporting of accidents and near-accidents for vulnerable road users were carried out in Belgium, Denmark, Spain and Sweden. Participants for the study had signed up voluntarily for registering their accidents and near-accidents as a pedestrian, cyclist or moped rider for a period of nine months (01.09.2016 - 31.05.2017). Unfortunately, the success rate of recruiting volunteers for the study differed in the four countries, and therefore most participants in the study were from Belgium and Denmark. Due to the use of volunteers, the sample cannot be expected to be representative for the population.

In total, the 2343 participants from the four countries registered 348 accidents and 1360 near-accidents while they travelled as vulnerable road users. Approx. 90% of the registered events occurred when the participant was cycling. The remaining 10 % of the events occurred when the participants were travelling as pedestrians. Only few events were registered for moped riders. This may indicate that the majority of the participants were frequent cyclists.

The results show that most accidents and near-accidents occur on weekdays in the morning and afternoon peaks. Approx. 70% of the accidents occurred in daylight. Half of the registered accidents occurred on road sections, while 45% occurred on intersections. 33-43% of the accidents were single accidents. For cyclists as well as for pedestrians, the most frequent counterparts in the multiparty accidents were cars and cyclists. Apart from single accidents, the most frequent accident types were rear-end collisions and turning accidents where the participant and the counterpart came from the same direction, e.g. a right turning vehicle against a cyclist going straight ahead. In 12% of the accidents, slippery roads due to snow or ice may have contributed to the accident. Furthermore, 20-23% of the participants involved in an accident stated that they thought that the other road user had been aware of them.

The results of this study also show that the number of registered accidents is considerable higher than accidents recorded by the police or by hospital only. Based on the registrations from the participants in Belgium and Denmark, this study suggests that only 2-7% of the participants who were involved in an accident have been in contact with the police and only 9% have registered that they had received treatment at the hospital or emergency room. The severity of the accidents registered in the study is generally lower than for the accidents from the official statistics, and 80% of the Belgian and 88% of the Danish accidents involved no or light injuries such as grazes, cuts or bruises. If one also includes near-accidents in the safety analysis, the number of events is even bigger. In this study, almost four times as many near-accidents as accidents were registered.

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Appendices

Appendix 1. Recruitment letters and material

Recruitment text 1 (English translation)

The Traffic Research Group at Aalborg University is now recruiting participants for a study on road accidents among pedestrians, cyclists and moped riders.

These road users are very exposed in traffic but only a small share of their accidents is registered by the police. We would like to know more about where and why the accidents occur and therefore recruit volunteers to tell about their accidents as pedestrian, cyclist or moped rider over the following nine months.

You can read more about the study and sign up as participant at www.safevru.aau.dk.

Then you will receive a questionnaire on your Android smartphone or via email once a month so that you can tell us if you have had an accident. If you answer all monthly questionnaires up to and including June 2017, you will automatically enter the draw to win a gift voucher for a dinner for 2 persons.

Recruitment text 2 (English translation)

Help us to get to know more about road accidents with pedestrians, cyclists and moped riders.

The Traffic Research Group at Aalborg University conducts a study on road safety among pedestrians, cyclists and moped riders. These vulnerable road users are very exposed in traffic but only a small share of their accidents is registered by the police. We therefore do not know much about where these accidents occur or how they occur.

In this study we want to do something about it by getting the vulnerable road users to tell about their accidents in traffic.

We therefore look for participants who will register their accidents as pedestrian, cyclist or moped rider during just under a year. Every month we will send a questionnaire to the participants in which they can tell about their accidents.

The study runs from September 1, 2016 to June 1, 2017 and is part of a European research project - <http://www.indev-project.eu>

Participants who answer all monthly questionnaires up to and including June 2017 will automatically enter the draw to win a gift voucher for a dinner for 2 persons.

You must be at least 18 years old to participate in the study.

You can find more information regarding the study at www.safevru.aau.dk

How to sign up:

If you have an Android smartphone, you can participate by installing our app SafeVRU that is available on Google Play.

If you do not have an Android smartphone, you can sign up via our web based questionnaire: [\[link\]](#)

If you have questions regarding the study, you can contact us by writing an email to [\[email address\]](#)

Text on Google Play (English translation)

The Traffic Research Group at Aalborg University conducts a study on road safety among pedestrians, cyclists and moped riders. With this study, we want to gain more insight into where and why these accidents occur, and thus improve road safety.

The study runs from September 1, 2016 to June 1, 2017 and is part of a European research project. The study is also conducted in Belgium, Sweden and Spain.

By installing this app, you can register your accidents and other dangerous events in traffic whenever you want.

Once a month, you receive a notification on your phone asking you to complete a questionnaire. In the questionnaire we ask you if you have been involved in one or more (near-)accidents in the past month that you have not yet registered in the app. If you haven't had any (near-)accidents – or if you already reported all your (near-)accidents – the only thing you have to do is to answer 'no' in the first question.

Participation in the study is voluntary and you can leave the study at any time by uninstalling the app.

You must be at least 18 years old to participate in the study.

Your data is treated and stored in accordance with the Danish Act on Processing of Personal Data. No results will be published that can identify you personally. During the sign up, you will be asked to provide your e-mail address. We only use this information to contact you in relation to the study. Your e-mail is not disclosed to third parties. After the study has finished, your e-mail address will be deleted, and your data will be stored only in anonymized form.

You can find more information regarding the study at www.safevru.aau.dk

If you have questions or want to know more about the study, you can contact us by writing an email to

[contact information]

This app is a part of project InDeV: In-depth Understanding of Accident Causation for Vulnerable Road Users. The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 635895.

Appendix 2. Enrolment questionnaire

When signing up for the study, either via installing the app or by signing up for the web based study, the participant answered the following questions in the enrolment questionnaire. Some parts differed depending on the platform (app, web). When different, both versions are included here.

1. Informed consent

By signing up in this questionnaire and by completing the questionnaires regarding your (near-)accidents in traffic, you provide permission to [institution] to process your data. The information you provide during your participation will be used exclusively for research purposes.

Your data is treated in accordance with the Act on Processing of Personal Data. No results will be published that can identify you personally.

During the sign up, you will be asked to provide your e-mail address. We only use this information to contact you in relation to the study. Your e-mail is not disclosed to third parties. After the study has finished, your e-mail address will be deleted, and your data will be stored and used for research only in anonymized form.

Participation in the study is voluntary and you can leave the study at any time by

app version: ... uninstalling the app

web version: ... sending an e-mail to [e-mail address]

You can request consultation and corrections to your answers.

You must be at least 18 years old to participate in the study.

Do you agree to participate in the study?

- Yes
- No

2. Age

- NumberField Range: 18-100
- I am younger than 18 years

3. Gender

- Female
- Male

4. Zip code

- NumberField Range: 1000-9999 (*depending on country*)

5. E-mail

Please check that your e-mail is correct

- FreeTextField

6. End text

End text (app version):

You have now signed up for our research project.

If you experience an accident as pedestrian, cyclists or moped rider during the study, you can register it whenever you want in this app. Once a month you will receive a notification on your smartphone to clarify if you have had any traffic accidents within the last month.

Thank you for participating in our research project!

End text (web version):

You have now signed up for our research project.

Once a month we will send you an email with a link to a questionnaire to clarify if you have had any traffic accidents within the last month. The first questionnaire will be sent to you in the beginning of October.

Thank you for participating in our research project!

End text when screened out due to age criterion:

Unfortunately, you do not meet the age criteria and will not be able to participate in the research study. Thank you for your interest in our study.

End text when screened out due to choosing 'No' to the informed consent:

You will not be signed up for the research study.

Thank you for your interest in our project.

Appendix 3. Questionnaire for self-reporting of accidents and near-accidents

The accident questionnaire below was used for registration of accidents and near-accidents. The questionnaire was (interactive), so that the questions depended on the previous answers.

Introduction text:

In this questionnaire you can specify if you have been involved in (near-)accidents within the past month.

Please provide as many details about the accident or near-accident as possible in the following questions.

1. Have you been involved in (near-)accidents within the past month that you have not yet registered?
 - a. Yes, it was an accident
 - b. Yes, it was a near-accident
 - c. I am unsure
 - d. No

2. Which date and time did the incident occur?
 - a. {date field} ☐ I don't remember the date
 - b. {time field} ☐ I don't remember the time

3. Have you or your means of transport been in physical contact with another road user or vehicle?
 - a. Yes
 - b. No

4. Did you crash/fall/get hurt/damage some of your personal belongings?
 - a. Yes
 - b. No

If ,Yes' to question 3 and/or 4 => go to question 7

5. Were you so close to collide with another road user that it felt uncomfortable?
 - a. Yes
 - b. No

6. Did you or the other road user make an evasive manoeuvre (e.g. brake, accelerate, change direction) in order to avoid a collision?
- a. Yes
 - b. No

If 'Yes' to question 5 and/or 6 => to question 35. Otherwise => go to question 40 or 41

7. Where did your accident happen?
- a. Road/street (including accidents that occur on the verge)
 - b. Pavement
 - c. Bicycle facility along the road (e.g. a bicycle path or bicycle lane)
 - d. Footpath/bicycle path (not placed along the road)
 - e. Pedestrian crossing facility (e.g. a zebra crossing or a safety island)
 - f. Bus/tram/light rail stop
 - g. Plaza, square or parking lot
 - h. Forest path, trail or beach
 - i. I don't remember / None of the above
8. How was the course of the road at the location of your accident?
- a. Straight road
 - b. Curve
 - c. Driveway (to private property, to parking lot, a trail, etc.)
 - d. Intersection with three legs
 - e. Intersection with four or more legs
 - f. Roundabout
 - g. On a bridge
 - h. I don't remember / None of the above
9. Was the intersection signalized?
- a. Yes
 - b. No
 - c. I don't remember

10. Mark the location where the accident took place. Adjust the location on the map as precise as possible. Click to add location, click again to remove, click and hold to move the location.

- a. {Map}
- b. I am not able to place/adjust the accident on the map

11. Please describe where the accident took place as accurate as possible.

- a. {FreeTextField}

12. Which means of transportation did you use when the accident occurred?

- a. I was walking
- b. Bicycle
- c. Moped
- d. Motorcycle
- e. Car
- f. Van
- g. Truck
- h. Bus
- i. Tram/light rail {only in countries where applicable}
- j. Roller skates, skateboard, segway etc.
- k. Other

13. Did you wear a helmet? {bicycle, moped}

- a. Yes
- b. No
- c. I don't remember

14. Which type of bicycle did you use? {bicycle – options depend on country}

- a. Ordinary bicycle
- b. Electric bicycle
- c. Sports bicycle (e.g. mountain bike, racing bike)
- d. Other type of bicycle (e.g. recumbent bicycle, cargo bike)
- e. I don't know

15. Which type of moped did you use? {moped – options depend on country}

- a. Small moped (30 km/h)
- b. Large moped (45 km/h)
- c. I don't know

16. How were the lighting conditions when the accident occurred?

- a. Daylight
- b. Twilight
- c. Darkness
- d. I don't remember

17. Was the street light turned on when the accident occurred?

- a. Yes
- b. Yes, but it was not working at the spot where my accident occurred
- c. No (street light was either turned off or not present)
- d. I don't remember

18. How were the weather conditions when the accident occurred?
[Multiple answers possible]

- a. No precipitation
- b. Intense sun
- c. Rain, snow, sleet or haze
- d. Fog
- e. Strong wind
- f. I don't remember / None of the above

19. How was the surface at the location of your accident?

- a. Dry
- b. Wet
- c. Slippery due to snow/ice
- d. Slippery due to aquaplaning, (wet) leaves, dirt, oil, etc.
- e. There was gravel on the surface
- f. I don't remember / None of the above

20. What was the purpose of your trip?

- a. To/from school or work
- b. Bring/get things or people
- c. Shopping
- d. Service (e.g. to the doctor, in the bank)
- e. Business trip (e.g. deliverance of goods, visiting customers)
- f. Visiting family/friends
- g. To/from leisure activities
- h. Exercise/sports
- i. To/from culture/entertainment (e.g. cinema, restaurant, stadium)
- j. To/from party/night in the city
- k. No purpose
- l. Other
- m. Don't know

21. Were any other road users (apart from yourself) involved in the accident?

- a. No, I was the only road user
- b. No, I was the only road user, but I hit or tried to evade an animal or an obstacle on the road (if you tried to evade another road user you should choose the option 'Yes, one or more road users were involved in the accident')
- c. Yes, one or more road users were involved in the accident (please also choose this option if you have collided with a parked vehicle)

22. Choose the illustration that best describes how your accident happened. {single accident}

- a. {Illustrations depending of answers to previous questions}

23. How did your accident happen? {pedestrian single accident}

- a. I fell/bumped my foot/twisted my ankle due to an irregularity of the surface
- b. I fell/bumped my foot/twisted my ankle on a curb
- c. I fell due to the surface being slippery from snow/ice
- d. I fell due to the surface being slippery from wet leaves, mud or similar
- e. I did not fall, but i experienced another type of accident (e.g. walking into something, something dropped from above)
- f. Other

24. What happened in the accident? {single accident, hit object or animal}

- a. I evaded or hit an animal
- b. I evaded or hit an object on the road (e.g. dropped items, glass, soil, container)
- c. I evaded or hit objects, signs or material used at roadwork (e.g. slabs to cover holes in the road)
- d. I evaded or hit equipment by the road (e.g. road signs, trees or lampposts)
- e. I had an accident due to rails across the road
- f. Other

25. Which means of transportation did the other road user use?

If the accident had more than two participants (including you) your statement must regard the road user who were the primary cause that the accident happened (the road user you collided with, tried to evade or tried to overtake)

- a. Walking
- b. Bicycle
- c. Moped
- d. Motorcycle
- e. Car
- f. Van
- g. Truck
- h. Bus
- i. Tram/light rail {only in countries where applicable}
- j. Roller skates, skateboard, Segway, etc.
- k. Other
- l. More than one other road user was involved apart from me and I am not able to decide which one was the primary cause the accident happened

When describing the type of accident (question 26), the participant gets a number of illustrations (2-8) to choose from, see page A16.

26. Describe the course of you and the other road user just before the accident.

- a. The other road user had travelled in the same direction as me
- b. The other road user had travelled in the opposite direction of me
- c. One of us performed a U-turn when we collided
- d. The other road user reversed when the accident occurred
- e. I hit a parked vehicle
- f. Other

Choose the illustration that best describes what happened in the accident.

- i. We both wanted to drive straight ahead through the intersection (including U-turns)
- ii. One or both of us wanted to make a turn in the intersection
- iii. I hit a parked vehicle
- iv. Other

- i. The other road user had travelled in the **same direction** as me before the intersection
- ii. The other road user had travelled in the **opposite direction** of me before the intersection
- iii. The other road user came from a **side road**
- iv. The other road user **reversed** when the accident occurred
- v. Other

- i. We both drove inside the roundabout
- ii. One or both of us drove out of the roundabout
- iii. One of us drove into the roundabout
- iv. Other

- i. The pedestrian crossed the road
- ii. The pedestrian was standing still at the road or walked along the road
- iii. Other

- i. I drove straight ahead in the intersection
- ii. I turned in the intersection
- iii. Other

- i. I drove into or out of the roundabout
- ii. Both of us were inside the roundabout
- iii. Other

- i. I crossed the road
- ii. I stood still at the road or walked along the road
- iii. Other

- i. The other road user drove straight ahead in the intersection
- ii. The other road user turned in the intersection
- iii. Other

- i. The other road user drove into or out of the roundabout
- ii. Both of us were inside the roundabout
- iii. Other

27. What happened in the accident?

- a. The other pedestrian and I collided
- b. I fell when trying to avoid another pedestrian
- c. Other

28. Please describe what happened when you had the accident. Use as many details as possible.

- a. {FreeTextField}

29. Who have you contacted regarding your accident?

[Multiple answers possible]

- a. My own physician
- b. The emergency service
- c. The emergency room and/or the hospital
- d. The police
- e. My insurance company
- f. None of the above

30. Which injuries did you derive from the accident?

[Multiple answers possible]

- a. No physical injury (but potentially startled)
- b. Grazes, cuts or bruises
- c. A sprain or twist (wrist, ankle, ribs, etc.)
- d. Burns
- e. Fracture on shoulder, arm, hand
- f. Fracture on hip, leg, foot
- g. Fracture on neck or back
- h. Whiplash

- i. Concussion
- j. Head injuries
- k. Internal bleedings
- l. Other injuries

31. Which of the following circumstances applies to your accident?

[Multiple answers possible] {options depend on road user type}

- a. I was in a hurry
- b. I was tired
- c. I was under the influence of alcohol, drugs or medicine
- d. I was listening to music
- e. I was talking with another person
- f. I was talking on the phone: hands-free
- g. I was talking on the phone: handheld
- h. I was immersed in my own thoughts
- i. I was using my phone (for other purposes than talking)
- j. I was distracted (e.g. looking at another road user, a sign, a store)
- k. I was ill/not feeling well
- l. My bicycle/moped had a mechanical failure (e.g. flat tire, broken chain, jammed brakes)
- m. I thought the other road user was aware of my presence
- n. I did not see the other road user
- o. None of the above

32. In your opinion, who has the primary responsibility for the accident?

- a. I think that the other road user had most responsibility for the accident
- b. I think that I had most of the responsibility for the accident
- c. I think that we were equally responsible for the accident
- d. I cannot / don't want to answer this question

33. Do you have additional information regarding the accident?

- a. {FreeTextField}

34. Have you been involved in other (near-)accidents that you have not registered yet?
- a. Yes
 - b. No

If 'Yes' to question 34, the participant goes to the beginning of the questionnaire to answer it for another event. If 'No', the end text is shown.

The following five questions are used if the participant answers 'Yes' to question 5 and/or 6

35. Mark the location where the incident took place. Adjust the location on the map as precise as possible.
- a. {Map}
 - b. I am not able to place/adjust the incident on the map
36. Please describe where the incident took place as accurate as possible.
- a. {FreeTextField}
37. Which means of transportation did you use when the incident occurred?
- a. I was walking
 - b. Bicycle
 - c. Moped
 - d. Motorcycle
 - e. Car
 - f. Van
 - g. Truck
 - h. Bus
 - i. Tram/light rail {only in countries where applicable}
 - j. Roller skates, skateboard, segway etc.
 - k. Other

38. Which means of transportation did the other road user use?

If the incident had more than two participants (including you) your statement must regard the road user who were the primary cause that the incident happened (i.e. the road user you tried to evade)

- a. Walking
- b. Bicycle
- c. Moped
- d. Motorcycle
- e. Car
- f. Van
- g. Truck
- h. Bus
- i. Tram/light rail {only in countries where applicable}
- j. Roller skates, skateboard, Segway, etc.
- k. Other
- l. More than one other road user was involved apart from me and I am not able to decide which one was the primary cause the incident happened
- m. I was the only road user

39. Describe the incident. Please include as many details as you can.

- a. {FreeTextField}

The following question is used if the participant answers 'No' to questions 3-6

40. Based on your answers we have estimated that you have neither had an accident nor a near-accident according to our definitions and you will therefore not be asked to answer more questions about the situation. If you want, you can describe what you experienced in the field below.

- a. {FreeTextField}

The following question is used if the participant has registered an incident that is not within the scope of the study (e.g. if he was driving in a car)

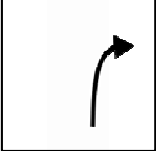
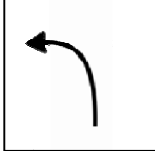
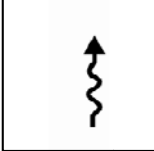

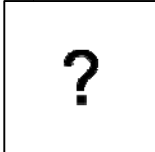
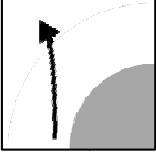
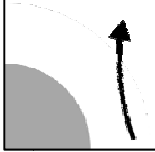
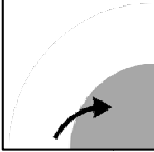
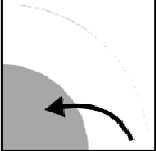
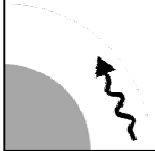
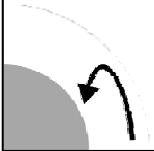

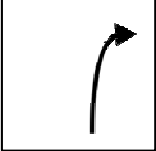

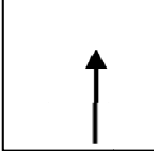
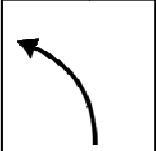

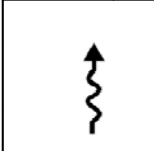
41. Please describe your accident below with as many details as possible, e.g. who was involved, what happened, how it happened, etc.

- b. {FreeTextField}













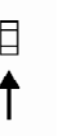








End text:

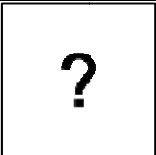
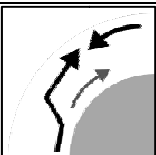
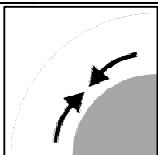
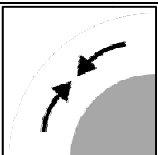
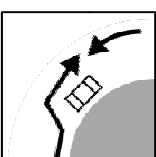
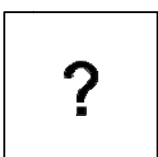
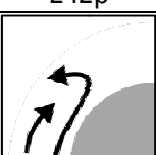
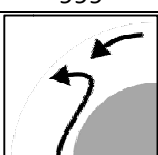
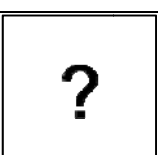
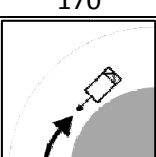
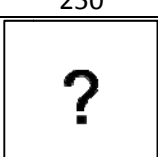
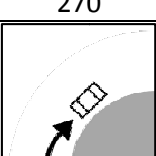
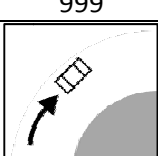
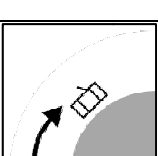
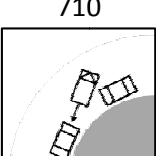
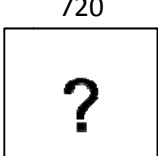
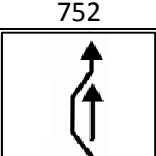
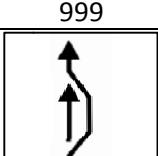
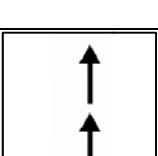
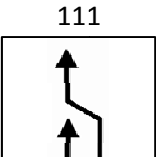
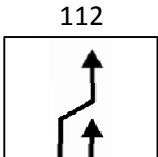
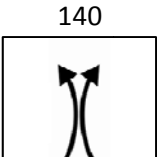
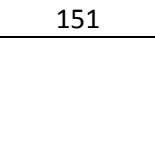
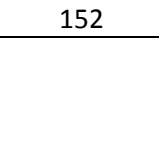
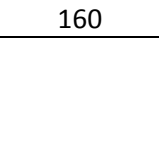
Your answers have been registered. Thank you for answering the questionnaire and for participating in our research project. You can now close this window.














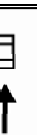








Illustrations for question 26

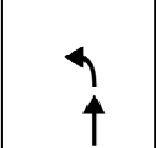

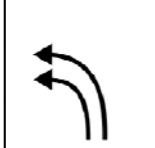

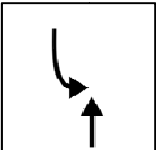
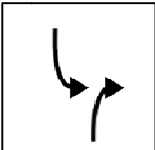
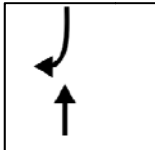

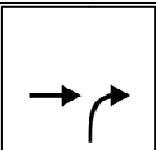
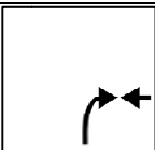
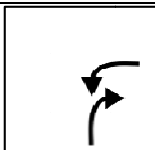
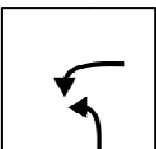
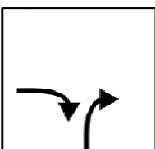
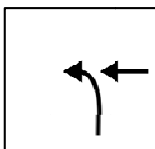
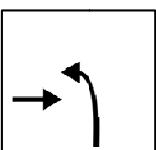
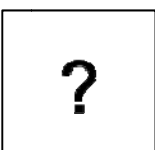
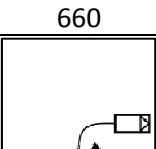
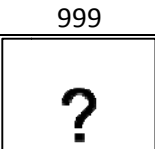
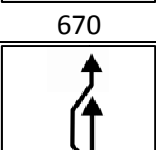
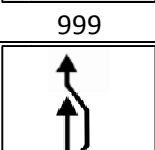
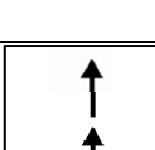
Illustration	Description (caption)
 <p>011</p>  <p>012</p>  <p>040</p>  <p>050</p>  <p>999</p>	<p>011: I wanted to drive straight ahead but had an accident in the right-hand side of the road</p> <p>012: I wanted to drive straight ahead but had an accident in the left-hand side of the road</p> <p>040: I had an accident on the roadway, e.g. falling off my bicycle/moped</p> <p>050: I made a U-turn</p> <p>999: Other</p>
 <p>021</p>  <p>022</p>  <p>023</p>  <p>024</p>  <p>040</p>  <p>050</p>  <p>999</p>	<p>021: I had an accident in the left-hand side of a right bend</p> <p>022: I had an accident in the right-hand side of a left bend</p> <p>023: I had an accident in the right-hand side of a right bend</p> <p>024: I had an accident in the left-hand side of a left bend</p> <p>040: ...</p> <p>050: ...</p> <p>999: ...</p>
 <p>011</p>  <p>012</p>  <p>031</p>  <p>032l</p>  <p>032r</p>  <p>040</p>	<p>011: ...</p> <p>012:...</p> <p>031: I drove straight ahead in the intersection (e.g. because I did not realize it was there)</p> <p>032l: I had an accident while turning to the left</p> <p>032r: I had an accident while turning to the right</p> <p>040: ...</p> <p>050: ...</p> <p>999: ...</p>

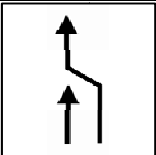
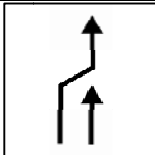
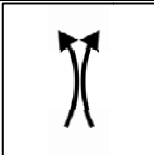
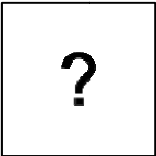
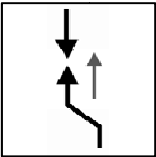
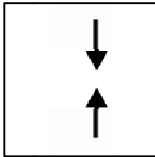
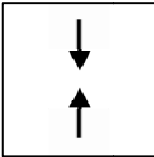

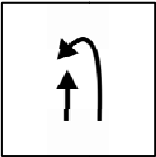
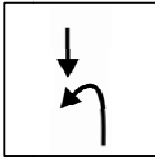

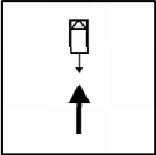

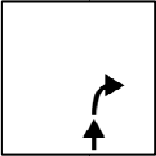
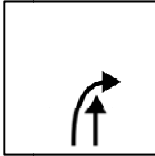
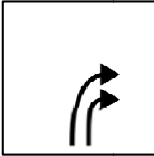
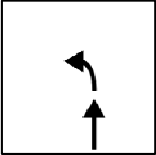
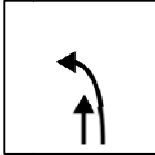
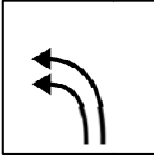

050	999		011: ... 012: ... 032l: ... 032r: ... 040: ... 050: ... 999: ...
011	012	032l	
032r	040	050	
999			022: I drove into the outer border of the roundabout while circulating 024: I drove into the central island while circulating 031: I drove straight ahead into the roundabout (e.g. because I did not realize it was there) 032i: I had an accident while driving into the roundabout 032u: I had an accident while driving out of the roundabout 040: ... 999: ...
022	024	031	
032i	032u	040	
999			111: I was overtaking another road user on his/her left side or he/she overtook me on my left side 112: I was overtaking another road on his/her right side or he/she overtook me on my right side 140: I drove into the back of the other road user or he/she drove into me from behind 151: One of us changed to another lane or merged in a lane to the left 152: One of us changed to another lane or merged in a lane to the right
111	112	140	
151	152	160	

			160: We came too close to each other while driving side by side 999: ...
			211: I collided with a road user from the opposite direction when one of us was overtaking a third road user who was in motion or stood still 241: I collided with a road user from the opposite direction in one side of the road 242: I collided with a road user from the opposite direction in the middle of the road 242p: I collided with a road user from the opposite direction when one of us were overtaking a parked vehicle 999: ...
			
			170: I collided with a road user from the same direction as me when one of us made a U-turn 250: I collided with a road user from the opposite direction of me when one of us made a U-turn 999: ...
			270: I collided with a reversing vehicle 999: ...
			710: I collided with a parked vehicle in the right-hand side of the road 720: I collided with a parked vehicle in the left-hand side of the road 740: I collided with an open door of a parked vehicle 999: ...
			
			111: ... 112: ... 140: ... 151: ... 152: ... 160: ... 999: ...
			


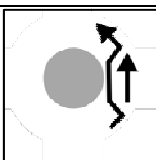
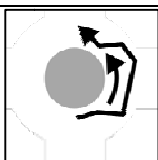
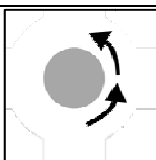
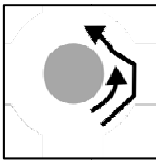

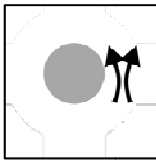

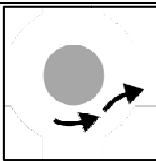
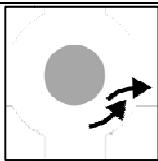
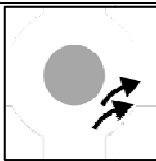

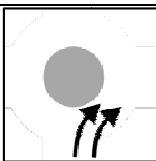
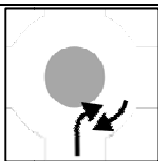
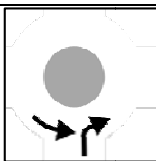

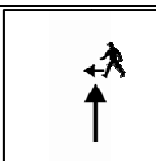

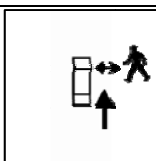
		
<p>999</p>		<p>211: ... 241: ... 242: ... 242p: ... 999: ...</p>
		
<p>211</p>	<p>241</p>	<p>242</p>
		
<p>242p</p>	<p>999</p>	
		
<p>170</p>	<p>250</p>	<p>999</p>
		
<p>270</p>	<p>999</p>	
		
<p>710</p>	<p>720</p>	<p>740</p>
		
<p>752</p>	<p>999</p>	
		
<p>111</p>	<p>112</p>	<p>140</p>
		
<p>151</p>	<p>152</p>	<p>160</p>
		
<p>111: ... 112: ... 140: ... 151: ... 152: ... 160: ... 999: ...</p>		

		
999		
		
211	241	242
		
242p	999	
		
170	250	999
		
270	999	
		
710	710s	720
		
720s	740	740s
		
752	999	
		
311	312	313

			<p>user</p> <p>313: Both of us turned to the right</p> <p>321: I drove into the back of a left-turning road user or he/she drove into me from behind while I turned to the left</p> <p>322: One of us drove straight ahead while the other turned to the left in front of the straight-going road user</p> <p>323: Both of us turned to the left</p> <p>999: ...</p>
			
			<p>410: One of us turned to the left in front of the other</p> <p>420: One of us turned left and the other turned right into the same side road</p> <p>440: One of us turned right in front of the other road user who came from the opposite direction</p> <p>999: ...</p>
			
			<p>610: One of us turned to the right in front of the other who came from the left</p> <p>620: One of us turned to the right and collided with the other who came from the right</p> <p>641: I collided with another road user when one of us turned left and the other turned right out of/into the same road</p> <p>643: We collided when both of us turned to the left out from/into the same road</p> <p>644: We collided when both of us turned to the right out from/into the same road</p> <p>650: One of us turned to the left in front of the other who came from the right</p> <p>660: One of us turned to the left in front of the other road user who came from the left</p> <p>999: ...</p>
			
			
			
			
<p>111</p>	<p>112</p>	<p>140</p>	<p>111: ...</p> <p>112: ...</p> <p>140: ...</p> <p>151: ...</p> <p>152: ...</p>


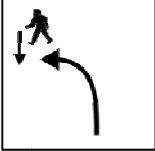
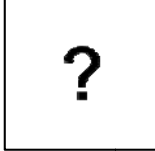

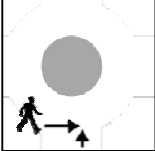
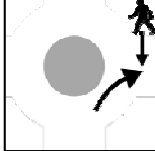
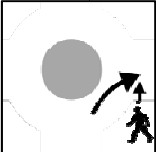
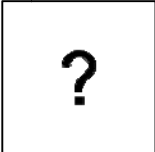
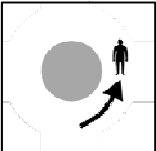
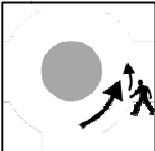

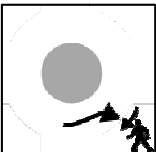
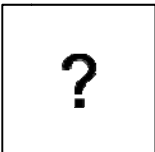
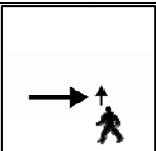
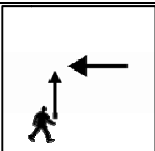
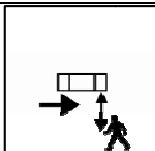
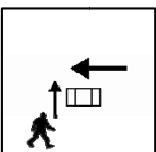
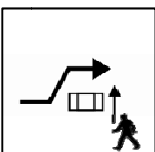
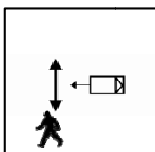

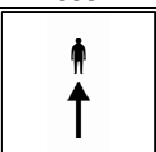
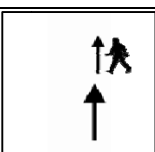
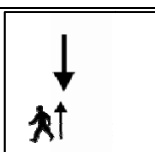
 151	 152	 160	160: ... 999: ...
 999			
 211	 241	 242	211: ... 241: ... 242: ... 999: ...
 999			
 170	 250	 999	170: ... 250: ... 999: ...
 270	 999		270: ... 999: ...
 311	 312	 313	311: ... 312: ... 313: ... 321: ... 322: ... 323: ... 999: ...
 321	 322	 323	
 999			


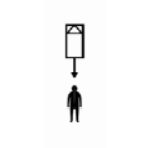

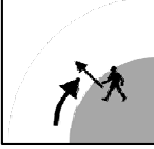
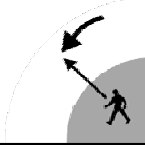
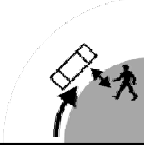
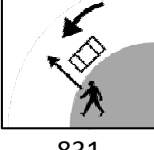
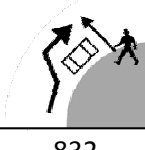
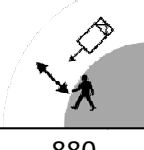
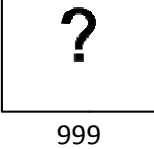
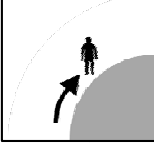
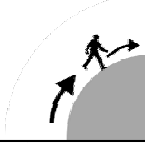
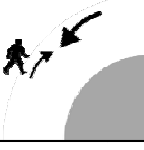
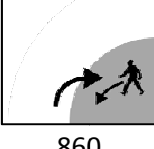
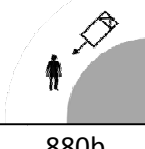
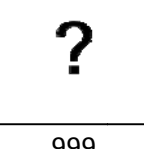
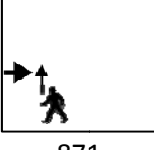
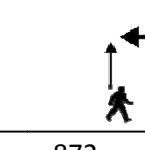
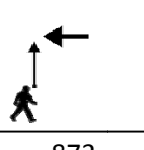
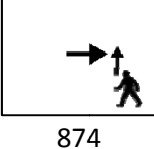
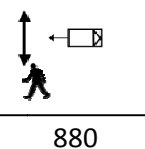
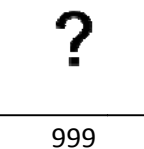
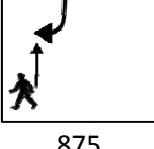
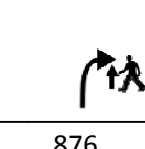
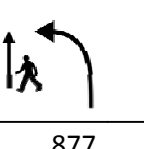
			<p>410: ... 420: ... 430: I collided with another road user when we travelled in opposite directions and both turned to the left 440: ... 999: ...</p>
			<p>510: I collided with a road user on my right-hand side while we both drove straight ahead in the intersection 520: I collided with a road user on my left-hand side while we both drove straight ahead in the intersection 999: ...</p>
			<p>610: ... 620: ... 641: ... 643: ... 644: ... 650: ... 660: ... 999: ...</p>
			<p>710: ... 710s: ... 720: ... 720s: ... 740: ... 740s: ... 999: ...</p>

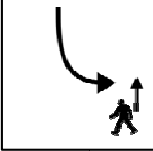
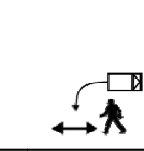

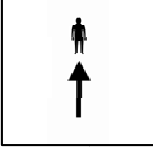
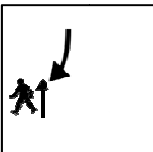
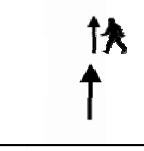
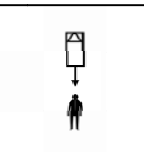
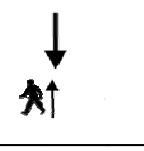

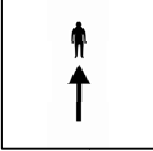
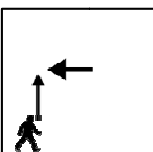

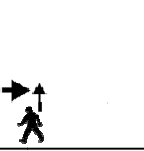
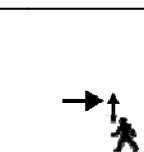
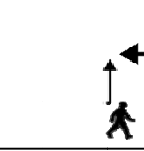
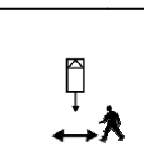
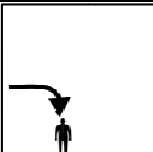
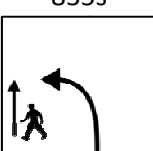
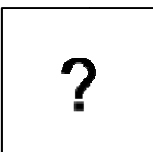
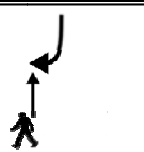
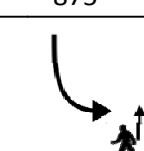

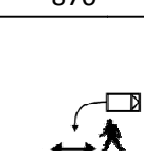
			
999			
			111: ... 112: ... 140: ... 151: ... 152: ... 160: ... 999: ...
111	112	140	
			
151	152	160	
			
999			
			311: One of us drove into the back of the other who exited the roundabout 312: One of us drove straight ahead while the other exited the roundabout in front of the straight-going road user 313: Both of us exited the roundabout 999: ...
311	312	313	
			
999			
			313i: We both entered the roundabout 440: One of us entered the roundabout and collided with the other who travelled in the wrong direction 610: One of us entered the roundabout in front of the other who circulated in the roundabout 999: ...
313i	440	610	
			
999			
			811: The pedestrian crossed from the right-hand side of the road 812: The pedestrian crossed from the left-hand side of the road 820: The pedestrian entered or left a bus/tram/light
811	812	820	

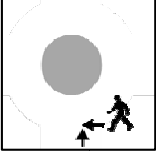
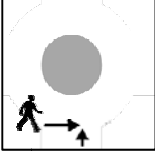
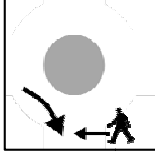


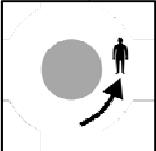

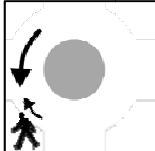
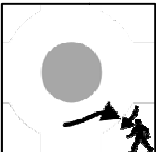
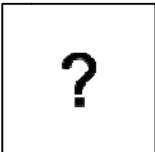
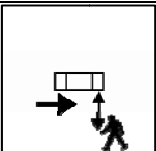
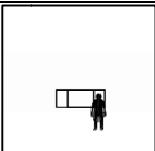
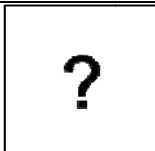
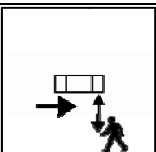
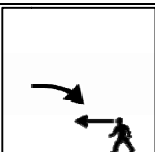
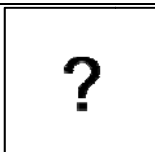
<div data-bbox="199 219 354 376"></div> <div data-bbox="252 383 300 409">831</div> <div data-bbox="402 219 557 376"></div> <div data-bbox="454 383 502 409">832</div> <div data-bbox="608 219 762 376"></div> <div data-bbox="660 383 708 409">999</div>	<p>rail</p> <p>831: I collided with a pedestrian from the left who was hidden behind a parked vehicle</p> <p>832: I collided with a pedestrian from the right while I passed a parked vehicle</p> <p>999: ...</p>
<div data-bbox="199 443 354 600"></div> <div data-bbox="252 607 300 633">835</div> <div data-bbox="402 443 557 600"></div> <div data-bbox="454 607 502 633">841</div> <div data-bbox="608 443 762 600"></div> <div data-bbox="660 607 708 633">851</div> <div data-bbox="199 640 354 797"></div> <div data-bbox="252 804 300 831">860</div> <div data-bbox="402 640 557 797"></div> <div data-bbox="454 804 502 831">999</div>	<p>835: The pedestrian stood still on the roadway</p> <p>841: I collided with a pedestrian walking along the road in the same direction as me</p> <p>851: I collided with a pedestrian walking along the road in the opposite direction of me</p> <p>860: I collided with a pedestrian on the pavement, a traffic island or similar</p> <p>999: ...</p>
<div data-bbox="199 837 354 994"></div> <div data-bbox="252 1001 300 1028">811</div> <div data-bbox="402 837 557 994"></div> <div data-bbox="454 1001 502 1028">812</div> <div data-bbox="608 837 762 994"></div> <div data-bbox="660 1001 708 1028">820</div> <div data-bbox="199 1032 354 1189"></div> <div data-bbox="252 1196 300 1223">831</div> <div data-bbox="402 1032 557 1189"></div> <div data-bbox="454 1196 502 1223">832</div> <div data-bbox="608 1032 762 1189"></div> <div data-bbox="660 1196 708 1223">999</div>	<p>811: ...</p> <p>812: ...</p> <p>820: ...</p> <p>831: ...</p> <p>832: ...</p> <p>999: ...</p>
<div data-bbox="199 1232 354 1388"></div> <div data-bbox="252 1395 300 1422">835</div> <div data-bbox="402 1232 557 1388"></div> <div data-bbox="454 1395 502 1422">841</div> <div data-bbox="608 1232 762 1388"></div> <div data-bbox="660 1395 708 1422">851</div> <div data-bbox="199 1424 354 1581"></div> <div data-bbox="252 1588 300 1615">860</div> <div data-bbox="402 1424 557 1581"></div> <div data-bbox="454 1588 502 1615">999</div>	<p>835: ...</p> <p>841: ...</p> <p>851: ...</p> <p>860: ...</p> <p>999: ...</p>
<div data-bbox="199 1626 354 1783"></div> <div data-bbox="252 1789 300 1816">871</div> <div data-bbox="402 1626 557 1783"></div> <div data-bbox="454 1789 502 1816">872</div> <div data-bbox="608 1626 762 1783"></div> <div data-bbox="660 1789 708 1816">873</div>	<p>871: The pedestrian crossed the road in front of me from the right-hand side before I entered the intersection</p> <p>872: The pedestrian crossed the road in front of me from the left-hand side before I entered the</p>

<div data-bbox="197 255 354 412"></div> <div data-bbox="248 416 303 448">874</div> <div data-bbox="400 255 557 412"></div> <div data-bbox="451 416 504 448">999</div>	<p>intersection</p> <p>873: The pedestrian crossed the road in front of me from the left-hand side after I had passed the intersection</p> <p>874: The pedestrian crossed the road in front of me from the right-hand side after I had passed the intersection</p> <p>999: ...</p>
<div data-bbox="197 517 354 674"></div> <div data-bbox="248 678 303 710">875</div> <div data-bbox="400 517 557 674"></div> <div data-bbox="451 678 504 710">876</div> <div data-bbox="606 517 762 674"></div> <div data-bbox="657 678 710 710">877</div> <div data-bbox="197 714 354 871"></div> <div data-bbox="248 875 303 907">878</div> <div data-bbox="400 714 557 871"></div> <div data-bbox="451 875 504 907">999</div>	<p>875: I turned to the right in the intersection and collided with a pedestrian coming from left</p> <p>876: I turned to the right in the intersection and collided with a pedestrian coming from right</p> <p>877: I turned to the left in the intersection and collided with a pedestrian coming from left</p> <p>878: I turned to the left in the intersection and collided with a pedestrian coming from right</p> <p>999: ...</p>
<div data-bbox="197 911 354 1068"></div> <div data-bbox="248 1072 303 1104">835</div> <div data-bbox="400 911 557 1068"></div> <div data-bbox="451 1072 504 1104">841</div> <div data-bbox="606 911 762 1068"></div> <div data-bbox="657 1072 710 1104">851</div> <div data-bbox="197 1108 354 1265"></div> <div data-bbox="248 1270 303 1301">860</div> <div data-bbox="400 1108 557 1265"></div> <div data-bbox="451 1270 504 1301">999</div>	<p>835: ...</p> <p>841: ...</p> <p>851: ...</p> <p>860: ...</p> <p>999: ...</p>
<div data-bbox="197 1305 354 1462"></div> <div data-bbox="248 1467 303 1498">835</div> <div data-bbox="400 1305 557 1462"></div> <div data-bbox="451 1467 504 1498">871</div> <div data-bbox="606 1305 762 1462"></div> <div data-bbox="657 1467 710 1498">872</div> <div data-bbox="197 1498 354 1655"></div> <div data-bbox="248 1659 303 1691">873</div> <div data-bbox="400 1498 557 1655"></div> <div data-bbox="451 1659 504 1691">874</div> <div data-bbox="606 1498 762 1655"></div> <div data-bbox="657 1659 710 1691">999</div>	<p>835: ...</p> <p>871: ...</p> <p>872: ...</p> <p>873: ...</p> <p>874: ...</p> <p>999: ...</p>
<div data-bbox="197 1700 354 1856"></div> <div data-bbox="248 1861 303 1892">835s</div> <div data-bbox="400 1700 557 1856"></div> <div data-bbox="451 1861 504 1892">875</div> <div data-bbox="606 1700 762 1856"></div> <div data-bbox="657 1861 710 1892">876</div>	<p>835s: ... (same as 835)</p> <p>875: ...</p> <p>876: ...</p> <p>877: ...</p> <p>878: ...</p>

			999: ...
877	878	999	
			871: The pedestrian crossed the road in front of me from the right-hand side as I entered the roundabout
871	872	875	872: The pedestrian crossed the road in front of me from the left-hand side as I entered the roundabout
			875: I exited the roundabout and collided with a pedestrian coming from left
876	999		876: I exited the roundabout and collided with a pedestrian coming from right
			835: The pedestrian stood still on the roadway
835	841	851	841: I collided with a pedestrian walking along the border of the roundabout in the same direction as me
			851: I collided with a pedestrian walking along the border of the roundabout in the opposite direction of me
860	999		860: I collided with a pedestrian on the pavement, a traffic island or similar
			999: ...
811	812	820	
			811: I was hit by a road user coming from left
831	832	880	812: I was hit by a road user coming from right
			820: I was hit by the other road user when I entered or left the bus/tram/light rail
999			831: I crossed the road next to a parked vehicle and was hit by someone coming from right
			832: I crossed the road next to a parked vehicle and was hit by someone coming from left
835	841	851	880: I was hit by a reversing vehicle
			999: ...
			835: I was hit when I stood still on the road
			841: I was hit from behind by someone going in the same direction as me when I walked along the road
			851: I was hit from the front by someone going in the opposite direction of me when I walked along

 <p>860</p>	 <p>880b</p>	 <p>999</p>	<p>the road 860: I was hit by the other road user on the pavement, a traffic island or similar 880b: I was hit by a reversing vehicle while I stood still on the road 999: ...</p>
 <p>811</p>	 <p>812</p>	 <p>820</p>	<p>811: ... 812: ... 820: ... 831: ... 832: ... 880: ... 999: ...</p>
 <p>831</p>	 <p>832</p>	 <p>880</p>	
 <p>999</p>			
 <p>835</p>	 <p>841</p>	 <p>851</p>	<p>835: ... 841: ... 851: ... 860: ... 880b: ... 999: ...</p>
 <p>860</p>	 <p>880b</p>	 <p>999</p>	
 <p>871</p>	 <p>872</p>	 <p>873</p>	<p>871: I was hit by the other road user who came from my left side before he/she entered the intersection 872: I was hit by the other road user who came from my right side before he/she entered the intersection 873: I was hit by the other road user who came from my right side after he/she had passed the intersection</p>
 <p>874</p>	 <p>880</p>	 <p>999</p>	<p>874: I was hit by the other road user who came from my left side after he/she had passed the intersection 880: ... 999: ...</p>
 <p>875</p>	 <p>876</p>	 <p>877</p>	<p>875: I was hit by the other road user who came from my left side after he/she had passed the intersection 876: The other road turned to the right and hit me from my left side as I walked out on the road 877: The other road turned to the left and hit me</p>

 878	 880t	 999	<p>from my right side as I crossed the road 878: The other road turned to the left and hit me from my left side just as I walked out on the road 880t: ... (same as 880) 999: ...</p>
 835  860	 841  880b	 851  999	<p>835: ... 841: ... 851: ... 860: ... 880b: ... 999: ...</p>
 835  873  999	 871  874	 872  880	<p>835: ... 871: ... 872: ... 873: ... 874: ... 880: ... 999: ...</p>
 835s  877  999	 875  878	 876  880t	<p>835s: ... (same as 835) 875: ... 876: ... 877: ... 878: ... 880t: ...</p>

			<p>871: I was hit from left by a road user entering the roundabout 872: I was hit from right by a road user entering the roundabout 875: I was hit from right by a road user exiting the roundabout 876: I was hit from left by a road user exiting the roundabout 999: ...</p>
			
			<p>835: I was hit when I stood still inside the roundabout 841: I was hit from behind by someone circulating in the roundabout when I walked along the border of the roundabout 851: I was hit from the front when I walked along the border of the roundabout in the opposite direction of the traffic 860: I was hit by the other road user on the pavement, a traffic island or similar 999: ...</p>
			
			<p>820: ... 821: I was wedged in between the doors of the bus/tram/light rail when it started moving again 999: ...</p>
			

Appendix 4. Data tables

Table 12: Month of accidents and near-accidents.

	Belgium (n=490)	Denmark (n=658)
September	81 (17%)	98 (15%)
October	57 (12%)	89 (14%)
November	78 (16%)	83 (13%)
December	64 (13%)	76 (12%)
January	51 (10%)	84 (13%)
February	41 (8%)	60 (9%)
March	31 (6%)	51 (8%)
April	36 (7%)	55 (8%)
May	51 (10%)	62 (9%)

Table 13: Weekday of accidents and near-accidents.

	Belgium (n=490)	Denmark (n=658)
Monday	91 (17%)	117 (18%)
Tuesday	108 (20%)	146 (22%)
Wednesday	89 (17%)	107 (16%)
Thursday	103 (20%)	113 (17%)
Friday	66 (13%)	99 (15%)
Saturday	39 (7%)	49 (7%)
Sunday	31 (6%)	36 (5%)

Table 14: Time of day (hour) for accidents and near-accidents.

	Belgium (n=595)	Denmark (n=736)		Belgium (n=595)	Denmark (n=736)
0	2 (0%)	1 (0%)	12	18 (3%)	21 (3%)
1	0 (0%)	2 (0%)	13	23 (4%)	23 (3%)
2	2 (0%)	1 (0%)	14	21 (4%)	34 (5%)
3	0 (0%)	2 (0%)	15	29 (5%)	83 (11%)
4	1 (0%)	1 (0%)	16	69 (12%)	117 (16%)
5	4 (1%)	6 (1%)	17	94 (16%)	58 (8%)
6	12 (2%)	42 (6%)	18	51 (9%)	13 (2%)
7	50 (8%)	114 (15%)	19	17 (3%)	19 (3%)
8	113 (19%)	81 (11%)	20	17 (3%)	7 (1%)
9	19 (3%)	33 (4%)	21	5 (1%)	7 (1%)
10	18 (3%)	24 (3%)	22	7 (1%)	15 (2%)
11	18 (3%)	28 (4%)	23	5 (1%)	4 (1%)

Table 15: Single and multiparty accidents of cyclists and pedestrians.

	Belgium	Denmark
Cyclist single	39	83
Cyclist multiparty	69	112
Pedestrian single	4	6
Pedestrian multiparty	8	8

Table 16: Cycling accidents and near-accidents - Counterpart's means of transport. Other: roller skates, skateboard, segway, etc.

	Belgium (accidents near-accidents)		Denmark (accidents near-accidents)	
Car	36 (52%)	400 (72%)	48 (43%)	399 (63%)
Van	8 (12%)	35 (6%)	7 (6%)	45 (7%)
Truck	1 (1%)	16 (3%)	1 (1%)	30 (5%)
Bus	2 (3%)	23 (4%)	3 (3%)	14 (2%)
Tram / light rail	0 (0%)	1 (0%)	0 (0%)	0 (0%)
Motorcycle	0 (0%)	1 (0%)	0 (0%)	0 (0%)
Moped	2 (3%)	5 (1%)	1 (1%)	3 (0%)
Bicycle	9 (13%)	47 (8%)	43 (38%)	88 (14%)
By foot	9 (13%)	19 (3%)	8 (7%)	48 (8%)
Other	2 (3%)	8 (1%)	1 (1%)	2 (0%)

Table 17: Pedestrian accidents and near-accidents - Counterpart's means of transport. Other: roller skates, skateboard, segway, etc.

	Belgium (accidents near-accidents)		Denmark (accidents near-accidents)	
Car	6 (75%)	39 (74%)	3 (38%)	32 (60%)
Van	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Truck	0 (0%)	1 2(%)	0 (0%)	0 (0%)
Bus	0 (0%)	1 (2%)	0 (0%)	1 (2%)
Tram / light rail	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Motorcycle	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Moped	0 (0%)	0 (0%)	0 (0%)	2 (4%)
Bicycle	1 (13%)	11 (21%)	5 (63%)	15 (28%)
By foot	1 (13%)	0 (0%)	0 (0%)	3 (6%)
Other	0 (0%)	1 (2%)	0 (0%)	0 (0%)

Table 18: Road design at the location of the accident.

	Belgium (n=118)	Denmark (n=203)
Straight road	46 (39%)	83 (41%)
Curve	13 (11%)	18 (9%)
Driveway	5 (4%)	14 (7%)
T-intersection	16 (14%)	39 (19%)
Intersection (4+ legs)	27 (23%)	43 (21%)
Roundabout	5 (4%)	3 (1%)
On a bridge	2 (2%)	1 (0%)
Don't remember	4 (3%)	2 (1%)

Table 19: Weather at the time of the accident. The respondents could choose more than one option.

	Belgium (n=120)	Denmark (n=209)
Intense sun	17 (14%)	45 (22%)
Rain, snow, sleet or haze	23 (19%)	27 (13%)
Fog	1 (1%)	5 (2%)
Strong wind	4 (3%)	4 (2%)
Don't remember / none of the above	78 (65%)	130 (62%)

Table 20: Road surface at the time of the accident.

	Belgium (n=120)	Denmark (n=209)
Dry	83 (69%)	137 (66%)
Wet	15 (13%)	28 (13%)
Slippery due to snow/ice	14 (12%)	25 (12%)
Slippery due to aquaplaning, (wet) leaves, dirt, oil, etc.	5 (4%)	5 (2%)
There was gravel on the surface	0 (0%)	9 (4%)
Don't remember / none of the above	3 (3%)	5 (2%)

Table 21: Lighting conditions at the time of the accident.

	Belgium (n=120)	Denmark (n=209)
Daylight	89 (74%)	143 (68%)
Twilight	18 (15%)	29 (10%)
Darkness	12 (10%)	45 (22%)
Don't remember	1 (1%)	1 (0%)

Table 22: Injuries sustained from the accident. The respondents could choose more than one option.

	Belgium (n=120)	Denmark (n=209)
No physical injury (but potentially startled)	56 (47%)	79 (38%)
Grazes, cuts or bruises	50 (42%)	105 (50%)
A sprain or twist (wrist, ankle, ribs, etc.)	16 (13%)	30 (14%)
Burns	1 (1%)	0 (0%)
Fracture on shoulder, arm, hand	0 (0%)	8 (4%)
Fracture on hip, leg, foot	2 (2%)	0 (0%)
Fracture on neck or back	0 (0%)	1 (0%)
Whiplash	3 (3%)	2 (1%)
Concussion	1 (1%)	7 (3%)
Head injuries	3 (3%)	6 (3%)
Internal bleedings	2 (2%)	2 (1%)
Other injuries	10 (8%)	21 (10%)

Table 23: Contact with health services, the police and insurance company regarding the accident.

	Belgium (n=120)	Denmark (n=209)
My own physician	14 (12%)	21 (10%)
The emergency service	3 (3%)	9 (4%)
The emergency room and/or the hospital	11 (9%)	19 (9%)
The police	8 (7%)	5 (2%)
My insurance company	10 (8%)	25 (12%)
None of the above	89 (74%)	165 (79%)